# DRAFT FOR REVIEW

# CITY OF LONG BEACH
# WEST GATEWAY REDEVELOPMENT
# TRAFFIC IMPACT REPORT

**Prepared for**

*City of Long Beach*
*Department of Community Development*
*Redevelopment Bureau*

**Prepared by**

Meyer, Mohaddes Associates
a business unit of Iteris, Inc.

**April 2004**
**(Revised November 2004)**

**J03-1634**

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**400 Oceangate, Suite 480**
**Long Beach, CA 90802**

***Prepared Under the Supervision of:***

**Leon D. Ward CA T.E. # 0206**



**April 2004**
**(Revised November 2004)**

**J03-1634**

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# EXECUTIVE SUMMARY

The West Gateway Project includes approximately 660 new rental apartment units, 354 new for-sale condominium units, and neighborhood-oriented retail space. The Project is located on the blocks generally bounded by West Broadway on the south, Golden Avenue on the west, West 4th Street on the north, and Chestnut Avenue on the east. Some of the proposed redevelopment sites are currently occupied by buildings and are either unoccupied or have limited occupancy.

The Project is divided into 10 different redevelopment sites (numbered 1 through 11, excluding site 8). Site number 8 is the Broadway School site and is listed separately in this analysis as an individual related project. Sites 1, 9, 10, and 11 are proposed for the first phase of development and are expected to be under construction and completed by 2007. The remaining sites will be developed in a second phase and should be completed by 2010. The first phase will consist of approximately 409 apartment units, 354 condominium units, and 15,000 square feet of retail developed on sites 1, 9, 10, and 11 as previously shown on Figure 2. The full buildout will include an additional 154 apartment units.

A breakdown of the proposed development on each of the development parcels is as follows:

**Table E-1**
**PROJECT DEVELOPMENT PLAN**

| Site Number | Parcel Size (acres) | Unit Density (units/acre) | Residential Units | | Type | Retail Size (000's sq ft) |
|---|---|---|---|---|---|---|
| 1 | 1.01 | 63 | 64 | | Rental | |
| 2 | 0.98 | 50 | 49 | * | Owner | |
| 3 | 0.24 | 40 | 10 | * | Owner | |
| 4 | 0.70 | 50 | 35 | * | Owner | |
| 5 | 0.32 | 40 | 13 | * | Owner | |
| 6 | 0.25 | 40 | 10 | * | Owner | |
| 7 | 0.73 | 50 | 37 | * | Owner | |
| 9 | 2.42 | 79 | 190 | | Owner | |
| 10 | 2.64 | 68 | 164 | | Owner | |
| 11 | 3.38 | 102 | 345 | | Rental/Retail | 15 |

* - Number of units based on zoning code density. Actual number of units to be determined in Phase II.

Access to most of the redevelopment sites will be from the major streets with some access to the smaller sites from the adjacent minor streets where major street frontage is limited. As part of the redevelopment plan, the street frontages will be redesigned to provide more pedestrian-friendly features including wide sidewalks where they do not currently exist and narrow side streets with on-street parking and landscaped parkways. Major street treatments will include street trees and pedestrian-scaled features.

**Existing Conditions**
Based on consultation with the City of Long Beach, 36 key intersections were selected for analysis. These are intersections deemed most likely to experience significant impacts from the Project and therefore warrant detailed analysis. Of the 36 study intersections, 8 are currently controlled by stop signs. The remaining 28 study intersections are controlled by traffic signals.

AM and PM peak-hour LOS analyses were conducted for the 36 study intersections based on the measured traffic volumes, geometries, signal timings, and the previously described methodologies. All intersection analyses are performed using the TRAFFIX (Traffic Impact Analysis) software program. The existing conditions level of service analyses results are summarized in Table 4.

The results indicate that the intersections of Broadway and Maine Avenue and Shoreline Drive and Ocean Boulevard (PM peak hour only) currently operate at LOS E or F. The remaining 34 intersections currently operate at LOS D or better.

**Future No-Build Conditions**
The anticipated buildout year of the Project's first phase is expected to be 2007 with completion of all phases by the year 2010. The projection of Year 2007 and 2010 No-Project traffic consists of existing traffic plus ambient traffic growth (general background regional growth) plus growth in traffic generated by specific related projects expected to be completed by 2007 and 2010.

Ambient growth is regional background growth from development and growth located outside the study area and increased activity at current development with the study area. Based on discussions with the City of Long Beach staff, an annual background growth rate of 1.00 percent was factored into the future traffic volumes.

The City provided a list of 18 pending and approved building areas within the influence area that included apartments, condominiums, hotels, theatres, shopping centers, clubs, and restaurants. The list also provided key information concerning the location, number of units or square footage, and percent complete for each project. For this analysis, all related projects were assumed to be completed by the Year 2007.

Morning and evening peak-hour trip estimates for the related projects were developed based on rates published in the Institute of Transportation Engineer's publication *Trip Generation, 6th Edition* and Caltrans *11th Progress Report on Trip Generation*. Adjustments were included for pass-by and diverted/linked trips based on information in the ITE publication and rates developed for other developments in downtown Long Beach. A total of 1,404 AM and 3,181 PM trips will be generated by the related developments in the study area.

The trips generated by the related projects were assigned to the area street system based on the routes people will use to travel to and from the related project sites was determined based on the patterns of existing area traffic for similar types of developments and on patterns listed in previous traffic studies for the area.

***Year 2007 No-Build Traffic Operations***
The projection of Year 2007 No-Project traffic consists of existing traffic plus ambient traffic growth and traffic generated by the related projects. Based on these traffic forecasts, four study intersections, two that are currently operating at LOS E or F, are projected to be operating at LOS E or LOS F. The three intersections are:

- Broadway and Maine Avenue
- Ocean Boulevard and Pine Avenue (PM peak hour)
- Shoreline Drive and Ocean Boulevard

In addition, peak-hour operations at five other study intersections would have one or both peak hours operating at LOS D. The remaining intersections would operate at LOS C or better.

***Year 2010 No-Build Traffic Operations***
The projection of Year 2010 No-Build traffic consisted of existing traffic plus ambient traffic growth to the Year 2010 plus related projects plus Phase 1 project traffic. With these future traffic volumes, four study intersections would be operating at LOS E or F in the AM and/or PM peak hour. The four intersections are:

- Broadway and Maine Avenue
- 3rd Street and Daisy Avenue (AM peak hour)
- Ocean Boulevard and Pine Avenue (PM peak hour)
- Shoreline Drive and Ocean Boulevard

In addition, peak hour operations at seven other study intersections would have one or both peak hours operating at LOS D. The remaining intersections would operate at LOS C or better.

**Project Traffic Generation**
The first step in analyzing future traffic conditions with the Project is to estimate trip generation from the Project. For purposes of this study, no existing trip generation from the existing developments was assumed to consider a worst-case analysis. ITE Trip Generation rates were used to estimate future Project-related trips. The first Project phase is expected to generate 371 trips in the AM peak hour and 510 trips in the PM peak hour. The second Project phase is expected to generate an additional 100 AM peak hour trips and 127 PM peak hour trips.

**Project Trip Distribution and Assignment**
The routes people will use traveling to and from the project sites were determined based on the patterns of existing area traffic for similar types of developments and on patterns listed in previous traffic studies for the area. The Project access for each of the sites was assumed to be primarily from the major east-west streets for the larger development sites and from the side streets, is possible, for the smaller sites. The access to and from Broadway and 3rd Street will be restricted to appropriate turn-in/turn-out only. For Site 1, some access could be provided along Golden and/or Maine Avenue. For Site 2, access could also be provided from Maine and/or Daisy Avenues. For Sites 3 through 7, all access was assumed to occur from the adjacent north-south streets.

## Future With-Project Conditions

### *Year 2007 With-Project Traffic Operations*

For the 2007 With-Project conditions, four study intersections are projected to be operating at LOS E or LOS F in the AM and/or PM peak hour. The four intersections are:

- Broadway and Maine Avenue
- 3rd Street and Daisy Avenue (AM peak hour)
- Ocean Boulevard and Pine Avenue (PM peak hour)
- Shoreline Drive and Ocean Boulevard

In addition, peak hour operations at six other study intersections would operate at LOS D during one or both of the peak hours. The remaining intersections would operate at acceptable levels of service.

Based on the City's significance criteria, the Project would have ***no significant impact*** at any of the study area's signalized intersections.

### *Year 2010 With-Project Traffic Operations*

For the 2010 With-Project conditions, six study intersections are projected to be operating at LOS E or LOS F in the AM and/or PM peak hour. The six intersections are:

- Ocean Boulevard and Golden Shore (PM peak hour)
- Broadway and Maine Avenue
- 3rd Street and Daisy Avenue (AM peak hour)
- 3rd Street and Pacific Avenue (AM peak hour)
- Ocean Boulevard and Pine Avenue (PM peak hour)
- Shoreline Drive and Ocean Boulevard

In addition, peak hour operations at the six intersections of Ocean Boulevard and Golden Shore, 5th Street and Magnolia Avenue, Ocean Boulevard and Magnolia Avenue, Broadway and Pacific Avenue, Ocean Boulevard and Pacific Avenue, and Ocean Boulevard and Long Beach Boulevard would have one or both peak hours operating at LOS D. The remaining intersections would operate at LOS C or better. Table 10 summarizes the level of service results.

Based on the City's significance criteria, the Project would have ***no significant impact*** at any of the study area's signalized intersections.

### *Impacts at Unsignalized Intersections*

A review of the unsignalized intersections near the Project was performed to determine the relative increase in delay for the purpose of significant impact determination. As previously discussed, there are eight unsignalized intersections in the study area, of which only the Broadway and Maine and 3rd Street and Daisy Avenue intersections operate at LOS E or F after the development of the Project. Discussions with City staff indicated that there are already committed improvements to install traffic signals at the intersections of Broadway and Maine

and 3rd Street and Maine. With the installation of a traffic signal at the Broadway and Maine intersection, the impacts at that intersection will be mitigated and the intersection will operate at an acceptable level of service. Therefore, only the intersection of 3rd Street and Daisy will experience some level of project-related impacts.

**Recommended Improvements**
Improvements to the area transportation system are proposed as part of the Project and as part of other area projects previously approved by the City of Long Beach. The following discusses these improvements and proposed project mitigation measures.

***Previously Committed Improvements***
The projected poor future operating conditions at the Broadway and Maine Avenue would be mitigated by the traffic signal. The Year 2007 With-Project V/C's would be reduced to 0.506 for the AM peak hour and 0.519 for PM peak hour—both LOS A. For the Year 2010, the V/C's would be 0.534 in the AM and 0.551 in the PM—also both LOS A.

The operating conditions at the 3rd Street and Maine Avenue intersection are not projected to be poor and the traffic signal will primarily assist with pedestrian movement and gap creation for minor street access.

***Project Improvements***
As part of preliminary discussions with City staff, the concept of installing a traffic signal at the intersection of 3rd Street and Daisy Avenue was presented to complete the traffic signal grid in this area. Providing a traffic signal at this location would reduce traffic delays and provide for a more controlled pedestrian crossing at this intersection. While a traffic signal would not be required to mitigate Project-related impacts based on the City standards, it should be considered as a traffic control measure for enhanced pedestrian safety. However, a traffic signal warrant analysis should be performed to confirm the requirements for a traffic signal at this intersection.

No other mitigation measures would be required for the either the first or second phase of the Project.

**Congestion Management Program System Analysis**
The CMP for Los Angeles County requires that the traffic impact of individual development projects of potential regional significance be analyzed. An analysis of project-related impacts on the CMP system was conducted according to the guidelines set forth in the 2002 Congestion Management Program for Los Angeles County.

The intersection of Ocean Boulevard with Alamitos Boulevard is the only study area intersection that is part of the CMP Arterial monitoring locations. For purposes of the CMP, a significant impact generally occurs when the proposed project increases traffic demand on a CMP facility by two percent of capacity (V/C $\geq$ 0.02). The results of the capacity analysis indicate that the project will increase demand at the intersection by one percent or less ($\geq$ 0.01). Therefore, the project will not have a significant CMP impact at the intersection.

A CMP arterial analysis was also completed for the Project for the purpose of analyzing possible freeway and arterial street impacts from the project, The nearest CMP freeway/arterial monitoring stations is located along the I-710 Freeway. The project-added trips were compared with CMP Traffic Impact Analysis guidelines to determine if additional traffic impact analysis is needed at the freeway monitoring station. The analysis shows that the proposed project does not contribute more than the minimum 150 peak-period trips at the CMP mainline location and therefore will have no significant impact.

**Summary**

In summary, the Project would not significantly impact any of the 36 study intersections. The poor operation conditions at three of the currently unsignalized intersections would be mitigated by the installation of traffic signals at those intersections. However, beyond those locations where traffic signals are already committed, warrant analyses should be considered to verify the need for traffic signals. Without signalization at those locations, the unsignalized intersections of Broadway and Maine Avenue and 3rd Street and Daisy Avenue would experience significant delay.

# INTRODUCTION AND ENVIRONMENTAL SETTING

This report summarizes the results of a traffic impact analysis that was undertaken for the proposed West Gateway development (hereafter know as the Project) located in the City of Long Beach. The report summarizes the methodology, findings and conclusions of that traffic analysis. A total of 36 intersections in the vicinity of the Project site were analyzed. The analysis considered new vehicle trip making that will result from the Project, as well as traffic growth from other development (background growth and identified related projects) in the surrounding area. The study covers local and arterial roadways serving the project site. County of Los Angeles Congestion Management Program (CMP) guidelines were also used to assess the designated CMP roadway system.

## *Study Area*

Figure 1 depicts the study area, the locations of the analyzed intersections, and the location of the Project. Based on consultation with the City of Long Beach, 36 key intersections were selected for analysis. These are intersections deemed most likely to experience significant impacts from the Project and therefore warrant detailed analysis. The 36 study intersections are:

- 4th Street & Golden Avenue
- 3rd Street & Golden Avenue
- Ocean Boulevard & Golden Shore
- 4th Street & Maine Avenue
- 3rd Street & Maine Avenue
- Broadway & Maine Avenue
- 4th Street & Daisy Avenue
- 3rd Street & Daisy Avenue
- Broadway & Daisy Avenue
- 6th Street & Magnolia Avenue
- 5th Street & Magnolia Avenue
- 4th Street & Magnolia Avenue
- 3rd Street and Magnolia Avenue
- Broadway & Magnolia Avenue
- Ocean Blvd & Magnolia Avenue
- 4th Street & Chestnut Avenue
- 3rd Street & Chestnut Avenue
- Broadway and Chestnut Avenue
- 4th Street & Cedar Avenue
- 3rd Street & Cedar Avenue
- Broadway & Cedar Avenue
- 7th Street & Pacific Avenue
- 6th Street & Pacific Avenue
- 4th Street &u Pacific Avenue
- 3rd Street & Pacific Avenue
- Broadway & Pacific Avenue
- Ocean Boulevard & Pacific Avenue
- 4th Street & Pine Avenue
- 3rd Street & Pine Avenue
- Broadway & Pine Avenue
- Ocean Boulevard & Pine Avenue
- 3rd Street & Long Beach Boulevard
- Broadway & Long Beach Boulevard
- Ocean Blvd & Long Beach Blvd
- Shoreline Drive & Ocean Boulevard
- 7th Street & Magnolia Avenue

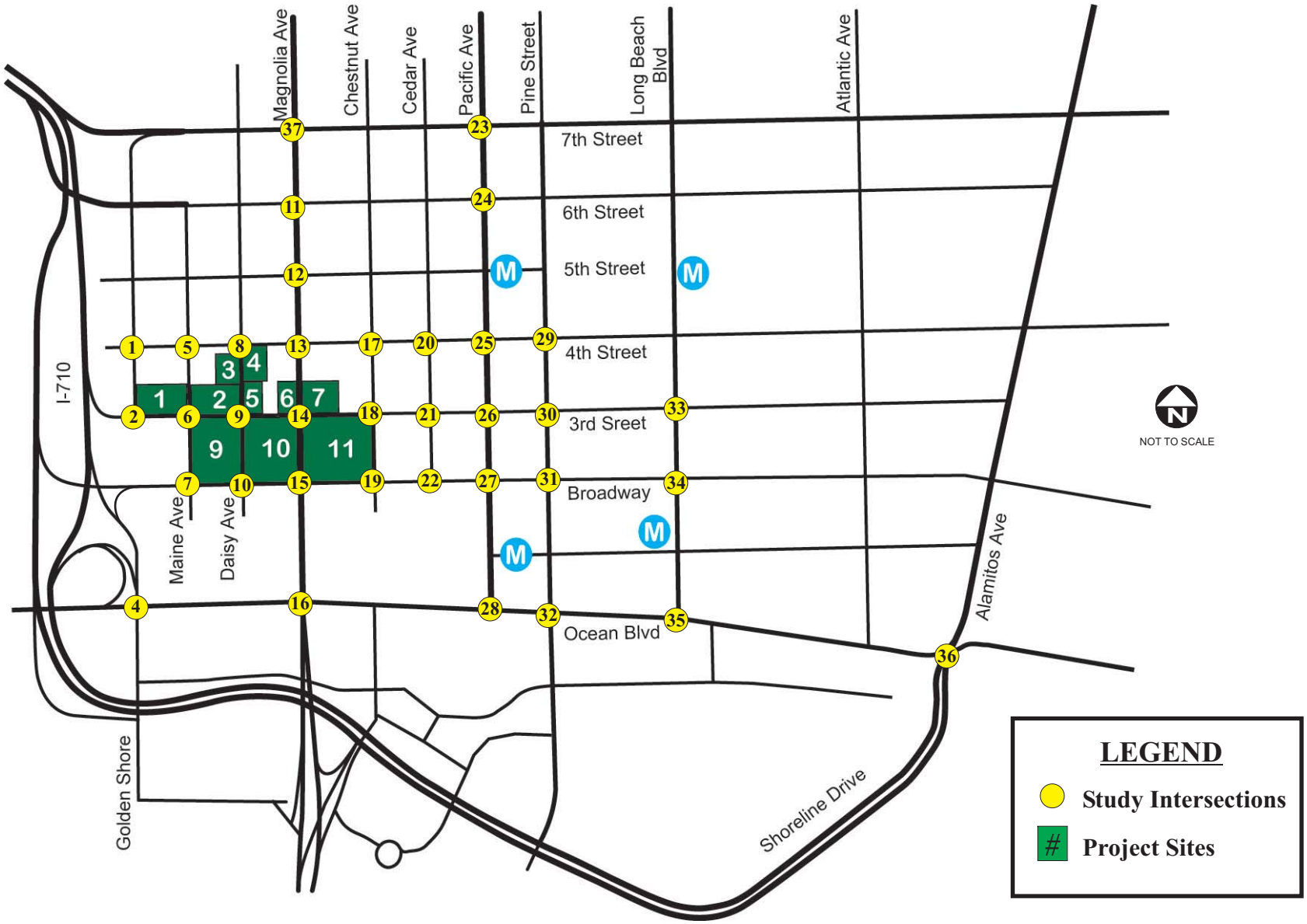


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**FIGURE 1**
**Project Location**

Of the 36 study intersections, 8 are currently controlled by stop signs. The remaining 28 study intersections are controlled by traffic signals. The eight stop-sign controlled intersections are:

- 4th Street & Golden Avenue
- 4th Street & Maine Avenue
- 3rd Street & Maine Avenue
- Broadway & Maine Avenue
- 4th Street & Daisy Avenue
- 3rd Street & Daisy Avenue
- 5th Street & Magnolia Avenue
- 4th Street & Chestnut Avenue

## *Key Roadway Descriptions*

The following describes key roadways within the study area:

**West Broadway** provides direct east-west access to sites 9, 10, and 11 of the Project. It is currently classified as a major arterial between the I-710 Freeway and Alamitos Avenue in the City of Long Beach functional classification of streets system. Near the Project, West Broadway is a one-way street with three lanes in the eastbound direction. Parking is allowed along the north side of the street and the posted speed limit is 30 MPH. The average daily traffic (ADT) along West Broadway in the study area ranges between 7,900 and 15,990 vehicles per day.

**West 3rd Street** also provides direct east-west access to the Project with access to sites 1, 2, 5, 6, 7, 9, 10, and 11. It is currently designated as a major arterial between the I-710 Freeway and Alamitos Avenue in the City of Long Beach functional classification of streets system. Adjacent to the project site, it is one-way and provides three lanes in the westbound direction. Parking is allowed on both sides of the roadway. The typical posted speed limit is 30 MPH. The ADT along West 3rd Street in the study area ranges between 9,500 and 13,300 vehicles per day.

**Ocean Boulevard** provides east-west linkage through Downtown and provides indirect access to the I-710 and I-110 freeways and eastern Long Beach. It is classified as a major arterial and provides three lanes in each direction with a raised center median. Parking is allowed on both sides of the street west of Magnolia Avenue. The ADT along Ocean Boulevard in the study area ranges between 23,300 and 47,100 vehicles per day.

**Magnolia Avenue** provides north-south linkage to the downtown and the Project. It is classified as major arterial south of 3rd Street and a minor arterial to the north in the City of Long Beach Transportation Element. It provides two lanes in each direction south of Broadway and one through lane in each direction to the north, with a two-way left-turn lanes and on-street parking on both sides north of Broadway. The ADT along Magnolia Avenue in the study area ranges between 7,700 and 16,000 vehicles per day.

**Pacific Avenue** is a north-south major arterial that provides access to the downtown area and contains the northbound portion of the MTA Blue Line transit route. Pacific Avenue has two travel lanes in each direction with no or limited on-street parking. The ADT along Pacific Avenue in the study area ranges between 4,300 and 14,000 vehicles per day.

**I-710 Freeway** is a north-south regional highway and provides access to the Project from the communities to the north, as well as the regional Interstate system. North of the study area it is part of the Los Angeles County Congestion Management Program's regional freeway system. The ADT along the I-710 Freeway in the study area is approximately 145,000 vehicles per day.

### *Project Description/Background*

The West Gateway Project includes approximately 660 new rental apartment units, 354 new for-sale condominium units, and neighborhood-oriented retail space. The Project is located on the blocks generally bounded by West Broadway on the south, Golden Avenue on the west, West 4th Street on the north, and Chestnut Avenue on the east as illustrated in Figure 1. Some of the proposed redevelopment sites are currently occupied by buildings and are either unoccupied or have limited occupancy. For purposes of this study, no existing trip generation from the existing developments was assumed to consider a worst-case analysis.

The Project is divided into 10 different redevelopment sites (numbered 1 through 11, excluding site 8), as previously shown in Figure 1. Site number 8 is the Broadway School site and is listed separately in this analysis as an individual related project. Sites 1, 9, 10, and 11 are proposed for the first phase of development and are expected to be under construction and completed by 2007. The remaining sites will be developed in a second phase and should be completed by 2010. A breakdown of the proposed development on each of the development parcels is as follows:

**Table 1**
**PROJECT DEVELOPMENT PLAN**

| Site Number | Parcel Size (acres) | Unit Density (units/acre) | Residential Units | | Type | Retail Size (000's sq ft) |
|---|---|---|---|---|---|---|
| 1 | 1.01 | 63 | 64 | | Rental | |
| 2 | 0.98 | 50 | 49 | * | Owner | |
| 3 | 0.24 | 40 | 10 | * | Owner | |
| 4 | 0.70 | 50 | 35 | * | Owner | |
| 5 | 0.32 | 40 | 13 | * | Owner | |
| 6 | 0.25 | 40 | 10 | * | Owner | |
| 7 | 0.73 | 50 | 37 | * | Owner | |
| 9 | 2.42 | 79 | 190 | | Owner | |
| 10 | 2.64 | 68 | 164 | | Owner | |
| 11 | 3.38 | 102 | 345 | | Rental/Retail | 15 |
| * - Number of units based on zoning code density. Actual number of units to be determined in Phase II. | | | | | | |

As shown in Figure 2, proposed access to most of the redevelopment sites will be from the major streets with some access to the smaller sites from the adjacent minor streets where major street frontage is limited. As part of the redevelopment plan, the street frontages will be redesigned to provide more pedestrian-friendly features including wide sidewalks where they do not currently exist and narrow side streets with on-street parking and landscaped parkways. Major street treatments will include street trees and pedestrian-scaled features.

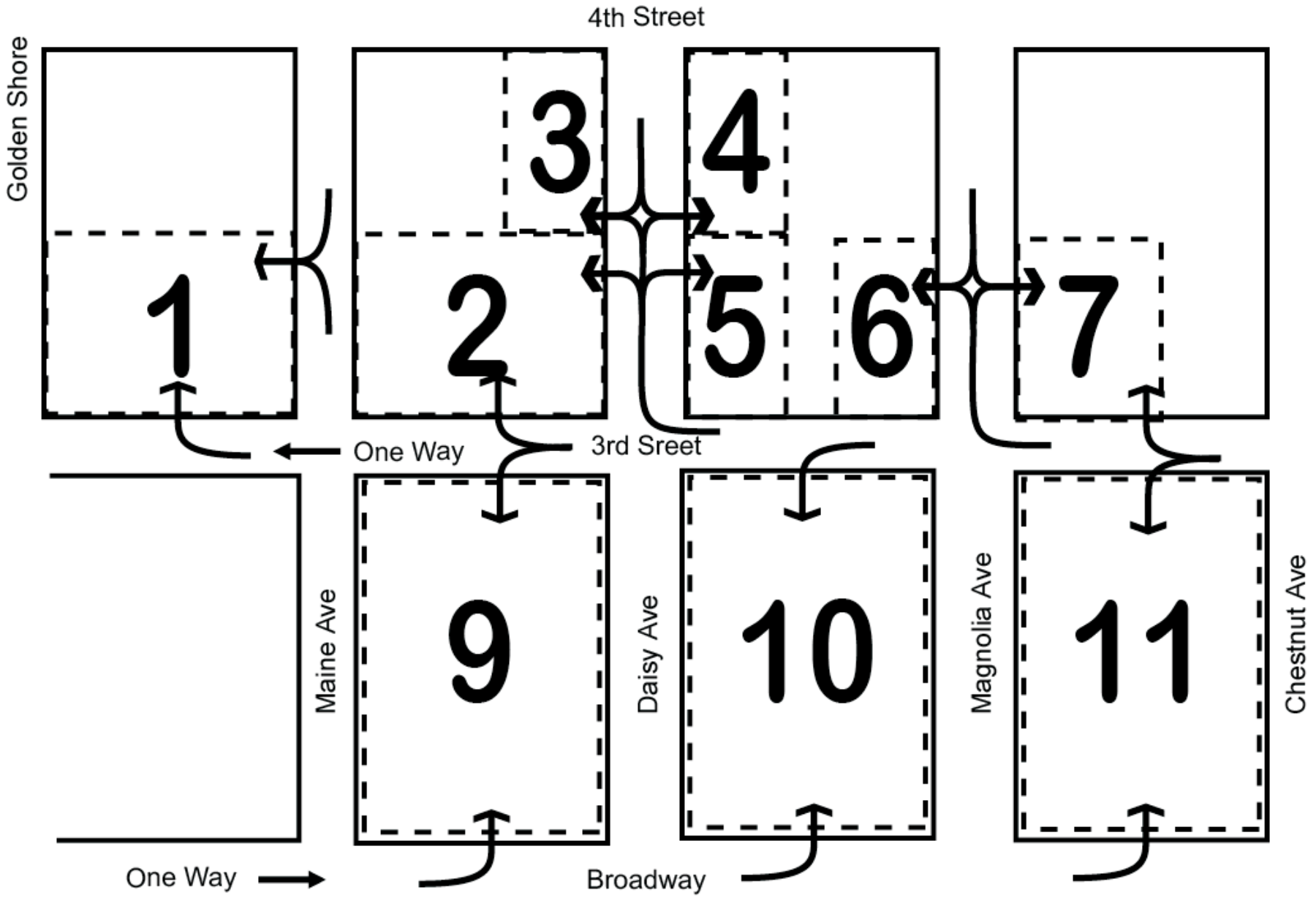


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**FIGURE 2**
**Preliminary Parcel Access Concept**

# EXISTING CONDITIONS

## *Traffic Data Collection*

An extensive field review was undertaken to establish existing traffic operations and conditions. . This included the verification of project descriptions, trip generation rates, ambient growth factors, trip distribution patterns, study intersections to be analyzed, and any special issues to be addressed in the study of this redevelopment area. A field inventory of intersection geometries, traffic controls, and other roadway conditions was completed with assistance from the City. The existing roadway lane configurations and traffic control are illustrated in Figure 3. The status of the existing buildings and building sites within the Project site and influence area was also noted. Turning movement traffic counts were collected during the morning (7-9 AM) and afternoon (4-6 PM) peak period. A summary of the existing intersections traffic volumes is illustrated in Figure 4.

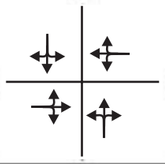
## *Traffic Operations Analysis Methodology*

Consistent with City of Long Beach guidelines for traffic impact analyses, traffic conditions in the vicinity of the project were analyzed using intersection capacity-based methodology known as the "Intersection Capacity Utilization Methodology" which is referred to hereinafter as the ICU Method.

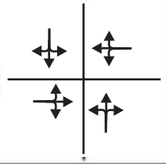
The efficiency of traffic operations at a location is measured in terms of Level of Service (LOS). Level of service is a description of traffic performance at intersections. The level of service concept is a measure of average operating conditions at intersections during an hour. It is based on volume-to-capacity (V/C) ratio. Levels range from A to F with A representing excellent (free-flow) conditions and F representing extreme congestion. The ICU methodology compares the level of traffic during the peak hours at an intersection (volume) to the amount of traffic that intersection is able to carry (capacity). Intersections with vehicular volumes that are at or near capacity (V/C $\cong$ 1.0) experience greater congestion and longer vehicle delays. Table 2 describes the level of service concept and the operating conditions expected under each level of service for signalized intersections.

Analysis of unsignalized intersections is conducted differently from signalized intersections due to different operating characteristics. Stop controlled intersections were analyzed using the delay-based Highway Capacity Manual (HCM) method of determining level of service. Table 3 also describes the level of service concept for unsignalized intersection.

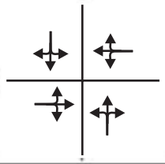
1. 4th Street / Golden Shore Ave



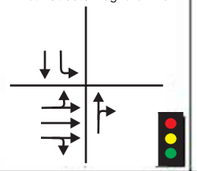
5. 4th Street / Maine Avenue



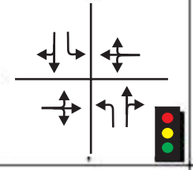
8. 4th Street / Daisy Avenue



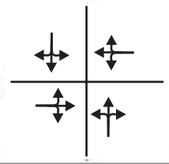
11. 6th Street / Magnolia Ave



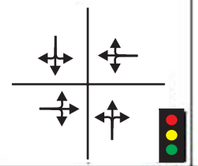
13. 4th Street / Magnolia Avenue



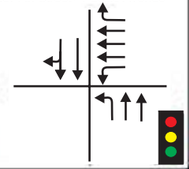
17. 4th Street / Chestnut Avenue



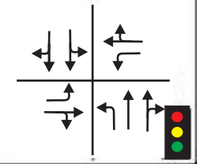
20. 4th Street / Cedar Avenue



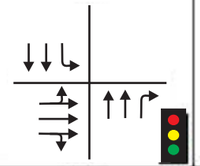
23. 7th Street / Pacific Avenue



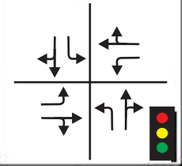
25. 4th Street / Pacific Avenue



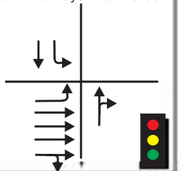
27. Broadway / Pacific Avenue



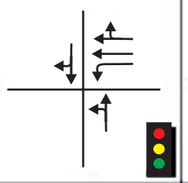
29. 4th Street / Pine Avenue



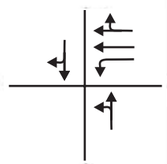
31. Broadway / Pine Avenue



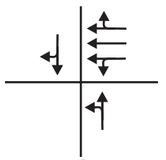
2. 3rd Street / Golden Shore Ave



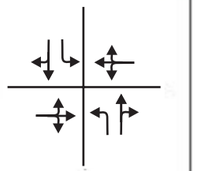
6. 3rd Street / Maine Avenue



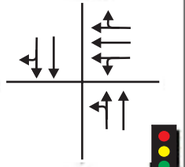
9. 4th Street / Daisy Avenue



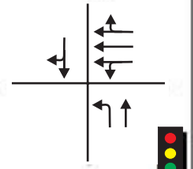
12. 5th Street / Magnolia Ave



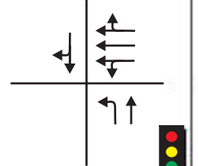
14. 3rd Street / Magnolia Avenue



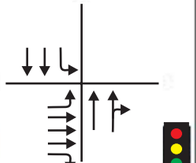
18. 3rd Street / Chestnut Avenue



21. 3rd Street / Cedar Avenue



24. 6th Street / Pacific Avenue



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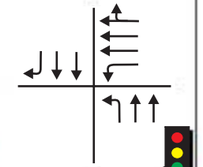
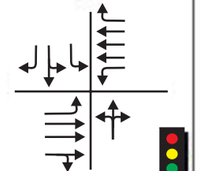
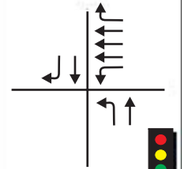


28. Ocean Blvd / Pacific Avenue



30. 3rd Street / Pine Avenue



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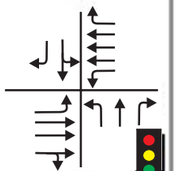
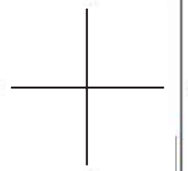
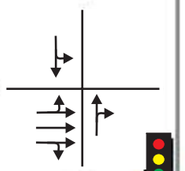


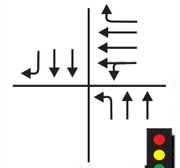
3. Broadway / Golden Shore Ave



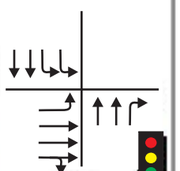
7. Broadway / Maine Avenue



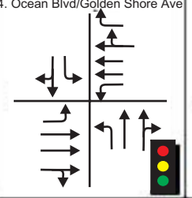
33. 3rd St / Long Beach Blvd



34. Broadway / Long Beach Blvd



4. Ocean Blvd/Golden Shore Ave



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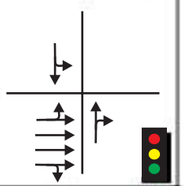
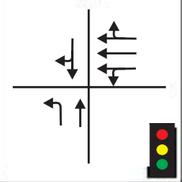
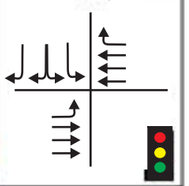


37. 7th St / Magnolia Ave



35. Ocean Blvd / Long Beach Blvd



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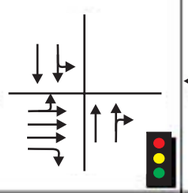
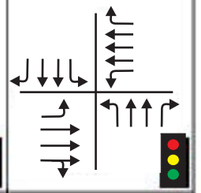
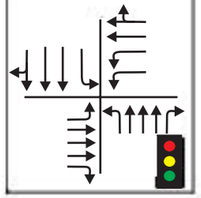


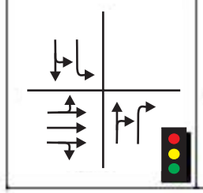
16 Ocean Blvd / Magnolia Ave



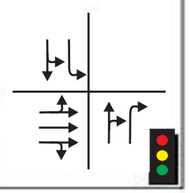
36. Ocean Blvd / Shoreline Ave

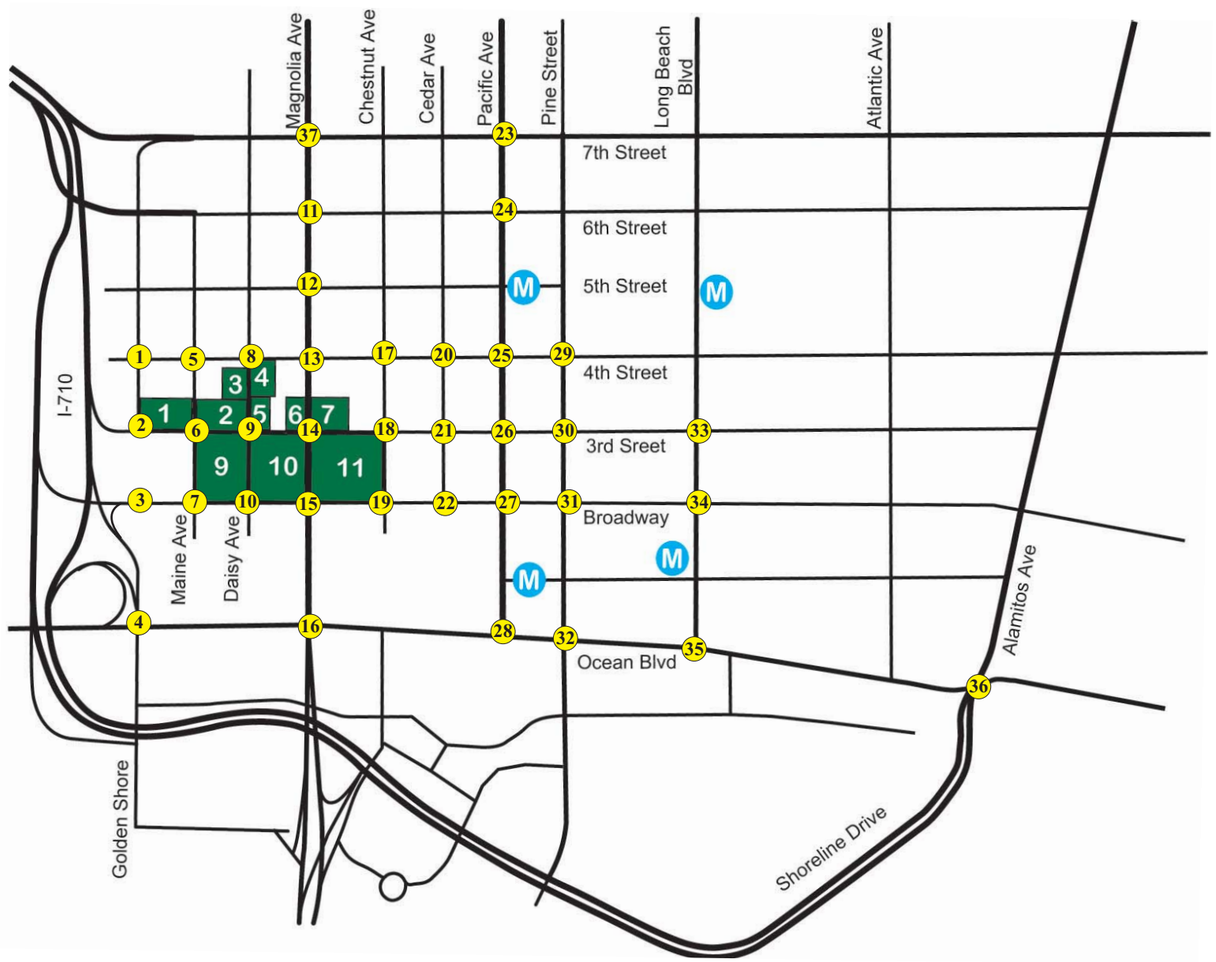


19. Broadway / Chestnut Avenue



22. Broadway / Cedar Avenue






NOT TO SCALE

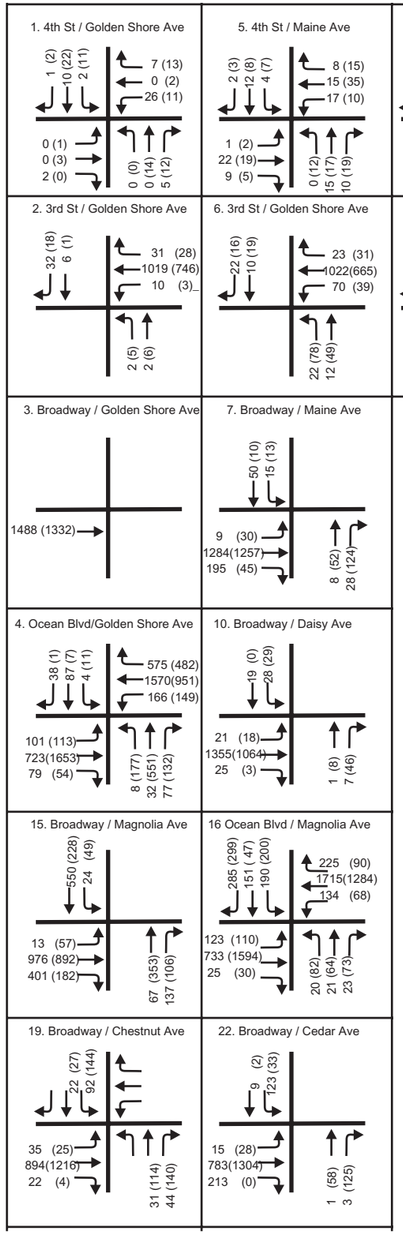
**LEGEND**

- Study Intersection
- Intersection With Traffic Signal

Meyer, Mohaddes Associates
a business unit of Iteris, Inc.

Long Beach West Gateway Traffic Study

**FIGURE 3**
**Existing Lane Configuration / Traffic Control**




Meyer, Mohaddes Associates, Inc.

*An Iteris Company*

**Long Beach West Gateway Traffic Study**

**FIGURE 4**

**Existing Peak-Hour Traffic Volumes**

**Table 2**
**LEVEL OF SERVICE DEFINITIONS**

| LOS | Interpretation | Volume to Capacity Ratio |
|---|---|---|
| A | Excellent operation - free-flow | 0.000 - 0.600 |
| B | Very good operation - stable flow, little or no delays | 0.601 - 0.700 |
| C | Good operation - slight delays | 0.701 - 0.800 |
| D | Fair operation – noticeable delays, queuing observed | 0.801 - 0.900 |
| E | Poor operation - long delays, near or at capacity | 0.901 - 1.000 |
| F | Forced flow – congestion | Over 1.000 |

Source: Highway Capacity Manual, Special Report 209, Transportation Research Board, Washington D.C., 1985 and Interim Materials on Highway Capacity, NCHRP Circular 212, 1982

**Table 3**
**LEVEL OF SERVICE CRITERIA FOR UNSIGNALIZED INTERSECTIONS**

| Level of Service (LOS) | Highway Capacity Manual Average Control Delay (sec/veh) | Level of Service Description |
|---|---|---|
| A | < 10 | Little or no delay |
| B | > 10 and ≤ 15 | Short traffic delays |
| C | > 15 and ≤ 25 | Average traffic delays |
| D | > 25 and ≤ 35 | Long traffic delays |
| E | > 35 and ≤ 50 | Very long traffic delays |
| F | > 50 | Severe congestion |

### *Existing Traffic Operations Analysis*

AM and PM peak-hour LOS analyses were conducted for the 36 study intersections based on the measured traffic volumes, geometries, signal timings, and the previously described methodologies. All intersection analyses are performed using the TRAFFIX (Traffic Impact Analysis) software program. The existing conditions level of service analyses results are summarized in Table 4.

LOS D is generally considered to be the lowest acceptable LOS in an urban or suburban area. LOS E and F are considered to be unacceptable operating conditions that warrant mitigation. The results, shown in Table 4, indicate that 2 of the 36 study intersections are currently operating at LOS E or F during either the AM or PM peak hour or both. The remaining 34 intersections currently operate at LOS D or better. The two intersections that currently operate at poor service levels are:

- Broadway and Maine Avenue
- Shoreline Drive and Ocean Boulevard (PM peak hour)

## Table 4
## EXISTING INTERSECTION OPERATING CONDITIONS

| | Intersection | Existing | | | | | |
|---|---|---|---|---|---|---|---|
| | | AM Peak Hour | | | PM Peak Hour | | |
| | | LOS | Avg Vehicle Delay | V/C Ratio | LOS | Avg Vehicle Delay | V/C Ratio |
| 1 | 4th Street & Golden Avenue | A | 7.1 | 0.055 | A | 7.0 | 0.043 |
| 2 | 3rd Street & Golden Avenue | A | xxxxx | 0.442 | A | xxxxx | 0.283 |
| 4 | Ocean Boulevard & Golden Shore | A | xxxxx | 0.467 | C | xxxxx | 0.778 |
| 5 | 4th Street & Maine Avenue | A | 7.1 | 0.056 | A | 7.2 | 0.074 |
| 6 | 3rd Street & Maine Avenue | C | 21.5 | 0 | C | 20.0 | 0 |
| 7 | Broadway & Maine Avenue | F | 64.3 | 0 | E | 37.5 | 0 |
| 8 | 4th Street & Daisy Avenue | A | 7.2 | 0.063 | A | 7.6 | 0.1 |
| 9 | 3rd Street & Daisy Avenue | D | 28.3 | 0 | B | 14.8 | 0 |
| 10 | Broadway & Daisy Avenue | A | xxxxx | 0.252 | A | xxxxx | 0.237 |
| 11 | 6th Street & Magnolia Avenue | A | xxxxx | 0.405 | A | xxxxx | 0.576 |
| 12 | 5th Street & Magnolia Avenue | B | 14.1 | 0 | C | 16.5 | 0 |
| 13 | 4th Street & Magnolia Avenue | A | xxxxx | 0.354 | A | xxxxx | 0.398 |
| 14 | 3rd Street and Magnolia Avenue | A | xxxxx | 0.585 | A | xxxxx | 0.409 |
| 15 | Broadway & Magnolia Avenue | A | xxxxx | 0.454 | A | xxxxx | 0.385 |
| 16 | Ocean Boulevard & Magnolia Avenue | B | xxxxx | 0.657 | B | xxxxx | 0.645 |
| 17 | 4th Street & Chestnut Avenue | B | 10.2 | 0 | B | 11.4 | 0 |
| 18 | 3rd Street & Chestnut Avenue | A | xxxxx | 0.414 | A | xxxxx | 0.270 |
| 19 | Broadway & Chestnut Avenue | A | xxxxx | 0.265 | A | xxxxx | 0.424 |
| 20 | 4th Street & Cedar Avenue | A | xxxxx | 0.107 | A | xxxxx | 0.180 |
| 21 | 3rd Street & Cedar Avenue | A | xxxxx | 0.471 | A | xxxxx | 0.254 |
| 22 | Broadway & Cedar Avenue | A | xxxxx | 0.268 | A | xxxxx | 0.364 |
| 23 | 7th Street & Pacific Avenue | B | xxxxx | 0.615 | A | xxxxx | 0.496 |
| 24 | 6th Street & Pacific Avenue | A | xxxxx | 0.406 | B | xxxxx | 0.691 |
| 25 | 4th Street &u Pacific Avenue | A | xxxxx | 0.377 | A | xxxxx | 0.440 |
| 26 | 3rd Street & Pacific Avenue | B | xxxxx | 0.639 | A | xxxxx | 0.451 |
| 27 | Broadway & Pacific Avenue | A | xxxxx | 0.464 | B | xxxxx | 0.677 |
| 28 | Ocean Boulevard & Pacific Avenue | C | xxxxx | 0.711 | A | xxxxx | 0.584 |
| 29 | 4th Street & Pine Avenue | A | xxxxx | 0.216 | A | xxxxx | 0.333 |
| 30 | 3rd Street & Pine Avenue | A | xxxxx | 0.451 | A | xxxxx | 0.362 |
| 31 | Broadway & Pine Avenue | A | xxxxx | 0.315 | A | xxxxx | 0.591 |
| 32 | Ocean Boulevard & Pine Avenue | A | xxxxx | 0.537 | B | xxxxx | 0.667 |
| 33 | 3rd Street & Long Beach Boulevard | B | xxxxx | 0.665 | A | xxxxx | 0.522 |
| 34 | Broadway & Long Beach Boulevard | B | xxxxx | 0.639 | A | xxxxx | 0.432 |
| 35 | Ocean Boulevard & Long Beach Boulevard | A | xxxxx | 0.594 | B | xxxxx | 0.663 |
| 36 | Shoreline Drive & Ocean Boulevard | D | xxxxx | 0.868 | D | xxxxx | 0.899 |
| 37 | 7th Street & Magnolia Avenue | A | xxxxx | 0.585 | A | xxxxx | 0.441 |

* Note: Intersections are unsignalized and analyzed using HCS 2000 v/c ratio is not applicable at those locations
Average Vehicle Delay is in seconds

# FUTURE YEAR NO-BUILD ANALYSIS

To evaluate the potential impact of the proposed project on local traffic conditions, it is first necessary to develop a forecast of future traffic volumes in the study area under conditions without the Project. This provides a basis against which to measure the Project's traffic impacts.

The anticipated buildout year of the Project's first phase is expected to be 2007 with completion of all phases by the year 2010. The projection of Year 2007 and 2010 No-Project traffic consists of existing traffic plus ambient traffic growth (general background regional growth) plus growth in traffic generated by specific related projects expected to be completed by 2007 and 2010. The following describes the two growth components.

### *Background Traffic Growth*

Ambient growth is regional background growth from development and growth located outside the study area and increased activity at current development with the study area. Based on discussions with the City of Long Beach staff, an annual background growth rate of 1.00 percent was factored into the future traffic volumes.

### *Growth From Cumulative Related Projects*

In addition, there are adjacent projects in the downtown area generating AM and PM trips impacting the study area.

The City provided a list of pending and approved building areas within the influence area. It was recognized that additional traffic growth occurred from related development projects adjacent to the study area including apartments, condominiums, hotels, theatres, shopping centers, clubs, and restaurants. The City provided a list of 18 new development and redevelopment projects in the general area. The list also provided key information concerning the location, number of units or square footage, and percent complete for each project. For this analysis, all related projects were assumed to be completed by the Year 2007.

Morning and evening peak-hour trip estimates for these related projects were developed based on rates published in the Institute of Transportation Engineer's publication *Trip Generation, 6th Edition*. The trip generation rate for the Broadway School was developed based on information published in the Caltrans *11th Progress Report on Trip Generation* as suitable rates were not available in the ITE manual.

Adjustments were included for pass-by and diverted/linked trips based on information in the ITE publication and rates developed for other developments in downtown Long Beach. While transit access to all of the downtown sites is available, an explicit reduction in trips for transit use was

not included. This is because the overall use of transit in the area could not be defined and the trip rates for uses such as apartments in the ITE manual include the use of transit in their calculations. Therefore, the trip estimates may be considered a worst-case projection. Table 5 presents a summary the number of AM and PM trips generated from the related projects. A total of 1,404 AM and 3,181 PM trips will be generated by the related developments in the study area.

The routes people will use traveling to and from the related project sites was determined based on the patterns of existing area traffic for similar types of developments and on patterns listed in previous traffic studies for the area. The trips generated by the related projects were assigned to the area street system based on this directional distribution.

### *Year 2007 No-Build Traffic Operations*

The projection of Year 2007 No-Project traffic consists of existing traffic plus ambient traffic growth and traffic generated by the related projects, all of which were assumed to be completed by the Year 2007. The total Year 2007 No-Build traffic volumes are illustrated in Figure 5. Based on these traffic forecasts, five study intersections, two that are currently operating at LOS E or F, are projected to be operating at LOS E or LOS F. The five intersections are:

- 3rd Street and Maine Avenue
- Broadway and Maine Avenue
- 3rd Street and Daisy Avenue
- Ocean Boulevard and Pine Avenue (PM peak hour)
- Shoreline Drive and Ocean Boulevard

In addition, peak-hour operations at three intersections, Ocean Boulevard and Golden Shore, Ocean Boulevard and Pacific Avenue, and Ocean Boulevard and Long Beach Boulevard would have one or both peak hours operating at LOS D. The remaining intersections would operate at LOS C or better. Table 6 summarizes the capacity analysis results.

### *Year 2010 No-Build Traffic Operations*

The projection of Year 2010 No-Build traffic consisted of existing traffic plus ambient traffic growth to the Year 2010 plus related projects plus Phase 1 project traffic. The total Year 2010 No-Build traffic volumes are illustrated in Figure 6. With these future traffic volumes, five study intersections would be operating at LOS E or F in the AM and/or PM peak hour. The five intersections are:

- 3rd Street and Maine Avenue
- Broadway and Maine Avenue
- 3rd Street and Daisy Avenue (AM peak hour)
- Ocean Boulevard and Pine Avenue (PM peak hour)
- Shoreline Drive and Ocean Boulevard

In addition, peak hour operations at the seven intersections of Ocean Boulevard and Golden Shore, 5th Street and Magnolia Avenue, Ocean Boulevard and Magnolia Avenue, Broadway and Pacific Avenue, Ocean Boulevard and Pacific Avenue, and Ocean Boulevard and Long Beach Boulevard would have one or both peak hours operating at LOS D. The remaining intersections would operate at LOS C or better. Table 7 summarizes the level of service results.

**Table 5**

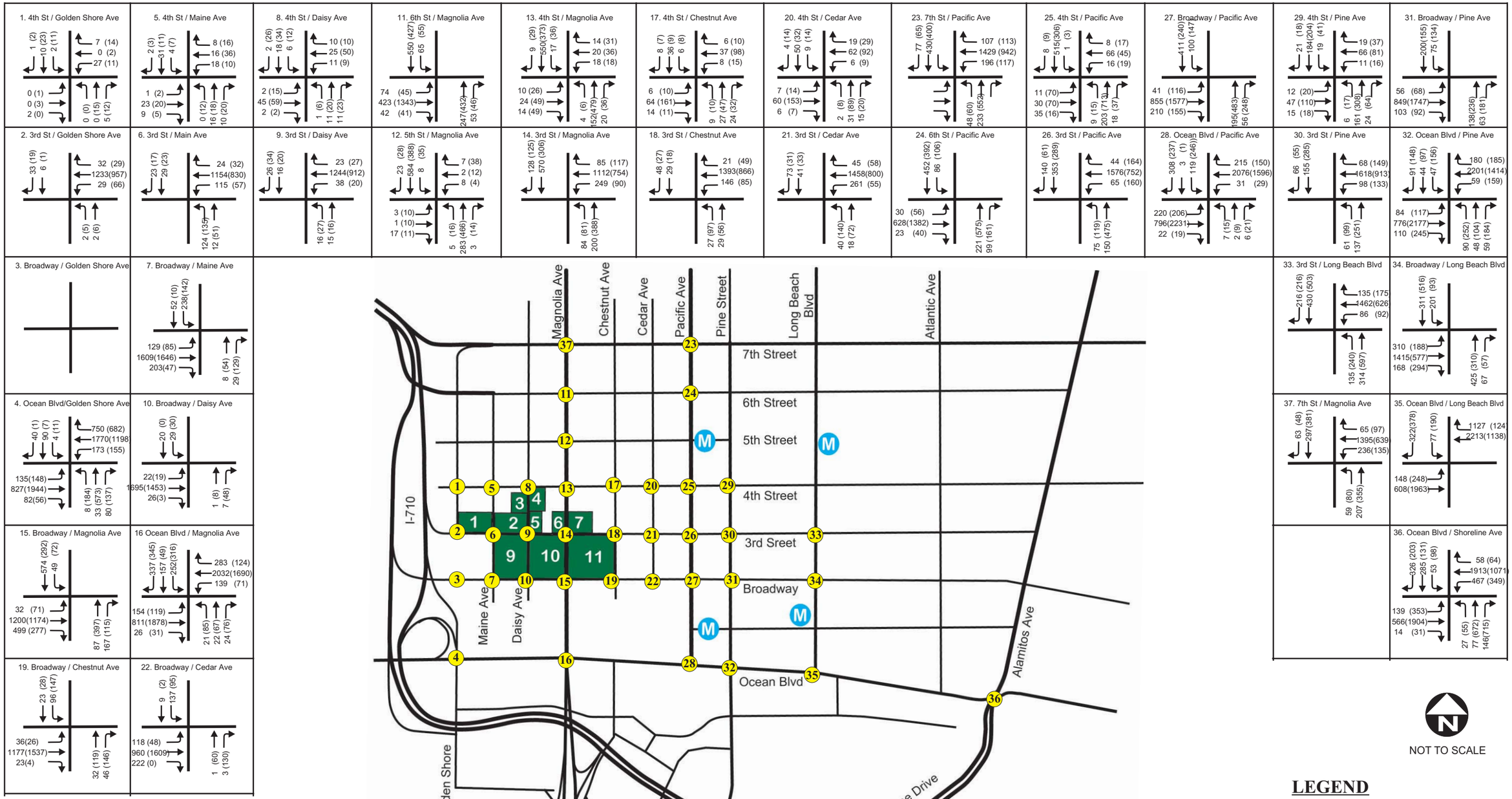
**Related Project Development Trip Generation**

| Related Projects | | Location | Pending/Approved Projects | | | | | Land Use Types | | ITE Rate Type & In/Out Percentages | | | | | | | | | | ITE Trip Generation Rate/Development Generated Trips | | | | | | | | | | Complete and Occupied (a) | Reduction for Pass-By and Diverted Linked Trips (%) | | Total Trips | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | | | | | | | | AM | | PM | | | AM | | PM | | AM ITE Rate | | | | | | PM ITE Rate | | | | | | | | AM | | | PM | | |
| | | | Apt.. Units | Condo Units | Hotel Rooms | Retail Sq. Ft. (1000) | Students | | | ITE Rate Code | In | Out | In | Out | ITE Rate Code | In | Out | In | Out | Apts | Condos | Rooms | Sq Ft | Students | Total AM Trips | Apts | Condos | Rooms | Sq Ft | Students | Total PM Trips | | Retail - PM | Restaurant - PM | Total Trips | Ins | Outs | Total Trips | Ins | Outs |
| 1.) | 100 E. Ocean Blvd | 100 E. Ocean Blvd | 151 | | | | | Apartment | | 221 | 20% | 80% | 66% | 34% | | | | | 0.47 | | | | | 71 | 0.58 | | | | | 88 | No | | | 71 | 14 | 57 | 88 | 58 | 30 |
| 2.) | Promenade - Lyon | Promenade site between Broadway and 3rd Street | 112 | | | 18 | | Apartment | Retail | 221 | 20% | 80% | 66% | 34% | 820 | 61% | 39% | 48% | 52% | 0.47 | | | 1.03 | | 71 | 0.58 | | | 3.74 | | 131 | No | 34% | | 71 | 22 | 49 | 131 | 75 | 57 |
| 3.) | Ocean Villas | 350 E. Ocean Blvd. | 556 | | | | | Apartment | | 221 | 20% | 80% | 66% | 34% | | | | | | 0.47 | | | | | 261 | 0.58 | | | | | 322 | No | | | 261 | 52 | 209 | 322 | 213 | 110 |
| 4.) | Insurance Exchange | The Promenade at Broadway | | 11 | | 12 | | Condo | Retail | 231 | 25% | 75% | 57% | 43% | 820 | 61% | 39% | 48% | 52% | | 0.66 | | 1.03 | | 19 | | 0.83 | | 3.74 | | 52 | No | 34% | | 19 | 9 | 10 | 52 | 26 | 26 |
| 5.) | Broadway Lofts | 224 - 248 E. Broadway (southwest corner of Broadway / Long Beach Blvd) | | 50 | | 12 | | Condo | Retail | 231 | 25% | 75% | 57% | 43% | 820 | 61% | 39% | 48% | 52% | | 0.66 | | 1.03 | | 45 | | 0.83 | | 3.74 | | 86 | No | 34% | | 45 | 16 | 30 | 86 | 45 | 41 |
| 6.) | Promenade - Greystone | East side of Promenade between 1st Street & Broadway | 62 | | | 9 | | Apartment | Retail | 221 | 20% | 80% | 66% | 34% | 820 | 61% | 39% | 48% | 52% | 0.47 | | | 1.03 | | 39 | 0.58 | | | 3.74 | | 71 | No | 34% | | 39 | 12 | 27 | 71 | 41 | 31 |
| | Promenade - Olson | West side of Promenade between 1st Street and Broadway | 97 | | | 10 | | Apartment | Retail | 221 | 20% | 80% | 66% | 34% | 820 | 61% | 39% | 48% | 52% | 0.47 | | | 1.03 | | 56 | 0.58 | | | 3.74 | | 94 | No | 34% | | 56 | 15 | 40 | 94 | 55 | 39 |
| 7.) | City Place Retail | 3rd St. on south, Pine on west, 6th St. on north, and Elm St. on east | | | | 454 | | Retail | | 820 | 61% | 39% | 48% | 52% | | | | | | | | | 1.03 | | 468 | | | | 3.74 | | 1,698 | Yes | 34% | | 0 | 0 | 0 | 0 | 0 | 0 |
| | City Place Residential | 3rd St. on south, Pine on west, 6th St. on north, and Elm St. on east | 38 | | | | | Apartment | | 221 | 20% | 80% | 66% | 34% | | | | | | 0.47 | | | | | 18 | 0.58 | | | | | 22 | No | | | 18 | 4 | 14 | 22 | 15 | 7 |
| 8.) | PCS Apartments | 5 sites within CityPlace between Long Beach Blvd. & Pine Ave | 221 | | | | | Apartment | | 221 | 20% | 80% | 66% | 34% | | | | | | 0.47 | | | | | 104 | 0.58 | | | | | 128 | 80% | | | 21 | 4 | 17 | 26 | 17 | 9 |
| 9.) | City Place Lofts | 4th Street and Elm Ave | 72 | | | | | Apartment | | 221 | 20% | 80% | 66% | 34% | | | | | | 0.47 | | | | | 34 | 0.58 | | | | | 42 | No | | | 34 | 7 | 27 | 42 | 28 | 14 |
| 10.) | Lofts on 4th | Southwest corner of 4th / Alamitos Ave | 34 | | | 6 | | Apartment | Retail | 221 | 20% | 80% | 66% | 34% | 820 | 61% | 39% | 48% | 52% | 0.47 | | | 1.03 | | 23 | 0.58 | | | 3.74 | | 44 | No | 34% | | 23 | 7 | 15 | 44 | 25 | 19 |
| 11.) | Pike - Theatre | Shoreline Drive and Pine Ave | | | | 79 | | Theater | | 444 | 0% | 0% | 64% | 36% | | | | | | | | | 0.00 | | - | | | | 3.80 | | 298 | 50% | | | 0 | 0 | 0 | 149 | 95 | 54 |
| | Pike - Night Club | Shoreline Drive and Pine Ave | | | | 35 | | Night Club | | 836 | 0% | 0% | 66% | 34% | | | | | | | | | 0.00 | | - | | | | 11.54 | | 406 | No | | 43% | 0 | 0 | 0 | 231 | 153 | 79 |
| | Pike - Restaurant | Shoreline Drive and Pine Ave | | | | 116 | | Restaurant | | 832 | 52% | 48% | 60% | 40% | | | | | | | | | 0.20 | | 23 | | | | 10.86 | | 1,262 | No | | 43% | 23 | 12 | 11 | 719 | 432 | 288 |
| | Pike - Retail | Shoreline Drive and Pine Ave | | | | 158 | | Retail | | 820 | 61% | 39% | 48% | 52% | | | | | | | | | 1.03 | | 163 | | | | 3.74 | | 591 | No | 34% | | 163 | 99 | 63 | 591 | 284 | 307 |
| 12.) | Pine Villas | 8th Street and Pine Ave, NEC | 63 | | | | | Apartment | | 221 | 20% | 80% | 66% | 34% | | | | | | 0.47 | | | | | 30 | 0.58 | | | | | 37 | Yes | | | 0 | 0 | 0 | 0 | 0 | 12 |
| 13.) | Walker Building | 401 N. Pine Ave | | | 46 | 18 | | Hotel | Retail | 310 | 61% | 39% | 53% | 47% | 820 | 61% | 39% | 48% | 52% | | | 0.56 | 1.03 | | 44 | | | 0.61 | 3.74 | | 95 | Yes | 34% | | 0 | 0 | 0 | 0 | 0 | 0 |
| 14.) | Newberry's | 433 Pine Avenue | 30 | | | | | Apartment | | 221 | 20% | 80% | 66% | 34% | | | | | | 0.47 | | | | | 14 | 0.58 | | | | | 17 | No | | | 14 | 3 | 11 | 17 | 11 | 6 |
| 15.) | D' Orsay Embassy Suites | 201 Promenade (Boadway and Promenade) | | | 230 | 10 | | Hotel | Retail | 330 | 72% | 28% | 43% | 57% | 820 | 61% | 39% | 48% | 52% | | | 0.31 | 1.03 | | 81 | | | 0.42 | 3.74 | | 133 | No | 34% | | 81 | 57 | 24 | 133 | 59 | 74 |
| 16.) | Broadway School | Northeast corner of Broadway / Golden Ave | | | | | 800 | Elementary School | | 520 | 59% | 41% | 46% | 54% | | | | | | | | | | 0.29 | 232 | | | | | 0.05 | 40 | No | | | 232 | 137 | 95 | 40 | 18 | 22 |
| 17.) | World Trade Center | Broadway between Golden Ave and Maine Ave | | 334 | | 12 | | Condo | Retail | 231 | 25% | 75% | 57% | 43% | 820 | 61% | 39% | 48% | 52% | | 0.66 | | 1.03 | | 233 | | 0.83 | | 3.74 | | 322 | No | 34% | | 233 | 63 | 170 | 322 | 180 | 143 |
| **Total Trips Generated** | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | 1,404 | 533 | 871 | 3,181 | 1,827 | 1,366 |

(a) Portions of pojects that were complete and occupied at the time of the traffic counts were not included as their trips would have been included in the existing intersection traffic volumes.

Notes: [1] Source - ITE Trip Generation Manual, 6th Ed, 1997

[2] Source - Caltran 11th Progress Report on Trip Ends Generation, 1976 (Elementarty school only)

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Long Beach West Gateway Traffic Study

**FIGURE 5**
**Year 2007 No-Build Peak-Hour Traffic Volumes**

## Table 6
## YEAR 2007 – NO-BUILD INTERSECTION OPERATING CONDITIONS

| | Intersection | Future 2007 - No Projects | | | | | |
|---|---|---|---|---|---|---|---|
| | | Future AM Peak Hour | | | Future PM Peak Hour | | |
| | | LOS | Avg Vehicle Delay | V/C Ratio | LOS | Avg Vehicle Delay | V/C Ratio |
| 1 | 4th Street & Golden Avenue | A | 7.1 | 0.058 | A | 7 | 0.045 |
| 2 | 3rd Street & Golden Avenue | A | xxxxx | 0.527 | A | xxxxx | 0.356 |
| 4 | Ocean Boulevard & Golden Shore | A | xxxxx | 0.553 | D | xxxxx | 0.861 |
| 5 | 4th Street & Maine Avenue | A | 7.2 | 0.060 | A | 7.2 | 0.077 |
| 6 | 3rd Street & Maine Avenue | F | 56.7 | 0 | E | 39.6 | 0 |
| 7 | Broadway & Maine Avenue | F | 525.4 | 0 | F | OVRFL | 0 |
| 8 | 4th Street & Daisy Avenue | A | 7.2 | 0.065 | A | 7.6 | 0.104 |
| 9 | 3rd Street & Daisy Avenue | E | 38.7 | 0 | C | 18.4 | 0 |
| 10 | Broadway & Daisy Avenue | A | xxxxx | 0.308 | A | xxxxx | 0.305 |
| 11 | 6th Street & Magnolia Avenue | A | xxxxx | 0.48 | B | xxxxx | 0.649 |
| 12 | 5th Street & Magnolia Avenue | C | 16.3 | 0 | C | 22.8 | 0 |
| 13 | 4th Street & Magnolia Avenue | A | xxxxx | 0.43 | A | xxxxx | 0.461 |
| 14 | 3rd Street and Magnolia Avenue | B | xxxxx | 0.663 | A | xxxxx | 0.493 |
| 15 | Broadway & Magnolia Avenue | A | xxxxx | 0.534 | A | xxxxx | 0.481 |
| 16 | Ocean Boulevard & Magnolia Avenue | C | xxxxx | 0.782 | C | xxxxx | 0.741 |
| 17 | 4th Street & Chestnut Avenue | B | 10.2 | 0 | B | 11.6 | 0 |
| 18 | 3rd Street & Chestnut Avenue | A | xxxxx | 0.452 | A | xxxxx | 0.317 |
| 19 | Broadway & Chestnut Avenue | A | xxxxx | 0.329 | A | xxxxx | 0.503 |
| 20 | 4th Street & Cedar Avenue | A | xxxxx | 0.114 | A | xxxxx | 0.205 |
| 21 | 3rd Street & Cedar Avenue | A | xxxxx | 0.542 | A | xxxxx | 0.337 |
| 22 | Broadway & Cedar Avenue | A | xxxxx | 0.336 | A | xxxxx | 0.458 |
| 23 | 7th Street & Pacific Avenue | B | xxxxx | 0.660 | A | xxxxx | 0.550 |
| 24 | 6th Street & Pacific Avenue | A | xxxxx | 0.434 | C | xxxxx | 0.742 |
| 25 | 4th Street &u Pacific Avenue | A | xxxxx | 0.399 | A | xxxxx | 0.474 |
| 26 | 3rd Street & Pacific Avenue | C | xxxxx | 0.705 | A | xxxxx | 0.521 |
| 27 | Broadway & Pacific Avenue | A | xxxxx | 0.508 | C | xxxxx | 0.793 |
| 28 | Ocean Boulevard & Pacific Avenue | D | xxxxx | 0.808 | C | xxxxx | 0.702 |
| 29 | 4th Street & Pine Avenue | A | xxxxx | 0.241 | A | xxxxx | 0.394 |
| 30 | 3rd Street & Pine Avenue | A | xxxxx | 0.517 | A | xxxxx | 0.472 |
| 31 | Broadway & Pine Avenue | A | xxxxx | 0.405 | C | xxxxx | 0.778 |
| 32 | Ocean Boulevard & Pine Avenue | B | xxxxx | 0.660 | E | xxxxx | 0.967 |
| 33 | 3rd Street & Long Beach Boulevard | C | xxxxx | 0.745 | B | xxxxx | 0.626 |
| 34 | Broadway & Long Beach Boulevard | B | xxxxx | 0.699 | A | xxxxx | 0.514 |
| 35 | Ocean Boulevard & Long Beach Boulevard | B | xxxxx | 0.694 | D | xxxxx | 0.850 |
| 36 | Shoreline Drive & Ocean Boulevard | E | xxxxx | 0.953 | F | xxxxx | 1.114 |
| 37 | 7th Street & Magnolia Avenue | B | xxxxx | 0.647 | A | xxxxx | 0.532 |

* Note: Intersections are unsignalized and analyzed using HCS 2000 v/c ratio is not applicable at those locations
Average Vehicle Delay is in seconds

1. 4th St / Golden Shore Ave
1 (2)
11 (24)
2 (2)
7 (14)
0 (2)
28 (12)
0 (1)
0 (3)
2 (0)
0 (0)
0 (15)
5 (13)

5. 4th St / Maine Ave
2 (3)
33 (13)
4 (7)
9 (17)
16 (37)
20 (16)
1 (2)
24 (20)
10 (5)
0 (13)
19 (21)
21 (28)

8. 4th St / Daisy Ave
2 (27)
18 (35)
6 (13)
11 (11)
28 (57)
12 (10)
3 (16)
55 (68)
2 (2)
1 (6)
12 (20)
18 (28)

11. 6th St / Magnolia Ave
585 (497)
67 (56)
76 (42)
438 (1385)
43 (48)
275(460)
55 (47)

13. 4th St / Magnolia Ave
12 (35)
583 (435)
17 (37)
14 (32)
20 (38)
18 (18)
21 (34)
30 (54)
14 (25)
4 (6)
167 (500)
22 (38)

17. 4th St / Chestnut Ave
9 (7)
39 (16)
6 (9)
6 (11)
39 (102)
9 (15)
6 (11)
73(171)
14 (12)
10 (11)
32 (51)
25 (33)

20. 4th St / Cedar Ave
4 (14)
51 (33)
10 (14)
19 (30)
64 (95)
6 (10)
7 (14)
69 (162)
6 (7)
2 (9)
32 (91)
15 (20)

23. 7th St / Pacific Ave
79 (67)
443(415)
110 (116)
1484 (1009)
200 (121)
49 (62)
246 (570)

25. 4th St / Pacific Ave
9 (10)
531 (319)
1 (3)
9 (17)
67 (46)
16 (19)
15 (75)
34 (75)
36 (16)
10 (15)
211(734)
18 (39)

27. Broadway / Pacific Ave
423 (245)
103 (150)
45 (121)
936 (1660)
219 (160)
200 (498)
57 (254)

29. 4th St / Pine Ave
21 (18)
191(213)
19 (42)
19 (39)
67 (83)
12 (16)
16 (23)
48 (113)
15 (18)
6 (17)
168(317)
25 (66)

31. Broadway / Pine Ave
205 (158)
77 (136)
60 (71)
928(1833)
106 (95)
141 (242)
64 (184)

2. 3rd St / Golden Shore Ave
34 (19)
6 (1)
33 (30)
1371(1060)
30 (66)
2 (5)
2 (6)

6. 3rd St / Maine Ave
28 (21)
33 (25)
33 (38)
1289(979)
117 (48)
125 (137)
16 (60)

9. 3rd St / Daisy Ave
27 (35)
16 (20)
30 (32)
1352(1015)
40 (20)
28 (37)
15 (16)

12. 5th St / Magnolia Ave
24 (29)
620 (455)
9 (36)
7 (40)
2 (13)
9 (4)
3 (11)
1 (11)
17 (12)
5 (16)
312 (494)
3 (14)

14. 3rd St / Magnolia Ave
144 (169)
590 (327)
92 (123)
11798(818)
267 (100)
100 (98)
213 (404)

18. 3rd St / Chestnut Ave
51(34)
30 (18)
21 (50)
1443(920)
150 (88)
37 (107)
34 (61)

21. 3rd St / Cedar Ave
75 (32)
42 (34)
46 (60)
1511(855)
267 (56)
46 (141)
20 (73)

24. 6th St / Pacific Ave
467(412)
89 (109)
31 (55)
649 (1417)
23 (44)
232 (596)
102 (166)

26. 3rd St / Pacific Ave
145 (69)
363 (295)
45 (168)
1629 (796)
67(164)
78 (124)
157 (490)

28. Ocean Blvd / Pacific Ave
317 (243)
3 (1)
126 (254)
222 (155)
2132(1642)
32 (30)
226 (211)
825(2293)
22 (19)
7 (15)
2 (10)
6 (21)

30. 3rd St / Pine Ave
71 (63)
159 (291)
70 (153)
1668(955)
100 (153)
63 (101)
143 (259)

32. Ocean Blvd / Pine Ave
94 (152)
45 (99)
49 (161)
184 (189)
2262(1461)
60 (161)
86 (120)
809(2244)
113 (247)
91 (255)
49 (107)
60 (188)

3. Broadway / Golden Shore Ave

7. Broadway / Maine Ave
53 (11)
245 (146)
133 (94)
1697(1819)
209(48)
9 (56)
30 (133)

4. Ocean Blvd/Golden Shore Ave
41 (1)
93 (7)
4 (12)
770 (704)
1856(1256)
178 (159)
148 (178)
854(2005)
85 (58)
9 (189)
34 (590)
82 (141)

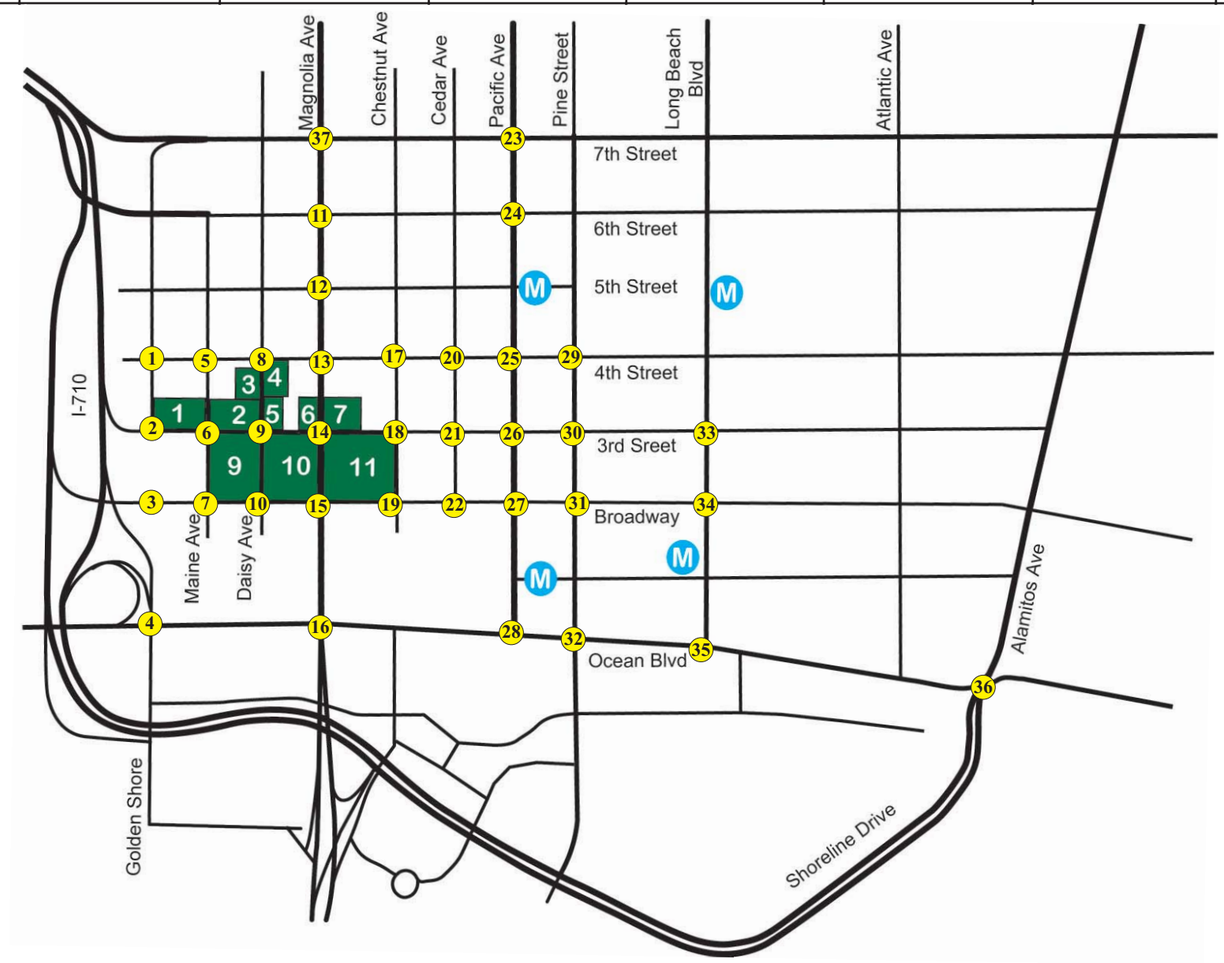
10. Broadway / Daisy Ave
20 (0)
30 (31)
34 (28)
1832(1599)
27 (3)
1 (9)
7 (49)

15. Broadway / Magnolia Ave
608 (307)
55 (87)
52 (86)
1302(1271)
553 (310)
93 (416)
176 (126)

16 Ocean Blvd / Magnolia Ave
385 (384)
162 (50)
267 (329)
293 (130)
2085(1736)
143 (73)
163 (135)
833(1926)
27 (32)
21 (88)
22 (68)
25 (78)

19. Broadway / Chestnut Ave
24 (29)
98 (151)
50 (37)
1271(1623)
24 (4)
33 (122)
47 (150)

22. Broadway / Cedar Ave
10 (2)
141 (98)
118 (43)
1050(1578)
228 (0)
1 (62)
3 (134)




33. 3rd St / Long Beach Blvd
228 (244)
442 (516)
139 (180
1503(647
89 (94)
137 (259)
342 (634)

34. Broadway / Long Beach Blvd
320 (529)
207 (95)
335 (229)
1491(629)
171 (310)
436 (315)
68 (59)

37. 7th St / Magnolia Ave
65 (49)
314 (415)
71 (102
1544(673
262 (171
61 (82)
235 (378)

35. Ocean Blvd / Long Beach Blvd
329 (385)
78 (194)
130 (126)
2276(1190)
152 (253)
636(2046)

36. Ocean Blvd / Shoreline Ave
335 (207)
293 (134)
54 (100)
60 (66)
1994(1105)
480 (354)
142 (363)
592(1950)
14 (32)
28 (57)
79 (691)
150 (732)

NOT TO SCALE

**LEGEND**

36 — **Study Intersection**

XX (XX) — **AM (PM)**

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**Long Beach West Gateway Traffic Study**

**FIGURE 6**
**Year 2010 No-Build Peak-Hour Traffic Volumes**

## Table 7
## YEAR 2010 – NO-BUILD INTERSECTION OPERATING CONDITIONS

| | Intersection | Future 2010 - No Projects | | | | | |
|---|---|---|---|---|---|---|---|
| | | Future AM Peak Hour | | | Future PM Peak Hour | | |
| | | LOS | Avg Vehicle Delay | V/C Ratio | LOS | Avg Vehicle Delay | V/C Ratio |
| 1 | 4th Street & Golden Avenue | A | 7.1 | 0.059 | A | 7.0 | 0.046 |
| 2 | 3rd Street & Golden Avenue | A | xxxxx | 0.583 | A | xxxxx | 0.392 |
| 4 | Ocean Boulevard & Golden Shore | A | xxxxx | 0.580 | D | xxxxx | 0.887 |
| 5 | 4th Street & Maine Avenue | A | 7.3 | 0.066 | A | 7.3 | 0.089 |
| 6 | 3rd Street & Maine Avenue | F | 103.8 | 0 | F | 66.9 | 0 |
| 7 | Broadway & Maine Avenue | F | 702.0 | 0 | F | OVRFL | 0 |
| 8 | 4th Street & Daisy Avenue | A | 7.3 | 0.081 | A | 7.7 | 0.119 |
| 9 | 3rd Street & Daisy Avenue | E | 45.6 | 0 | C | 20.4 | 0 |
| 10 | Broadway & Daisy Avenue | A | xxxxx | 0.334 | A | xxxxx | 0.333 |
| 11 | 6th Street & Magnolia Avenue | A | xxxxx | 0.507 | B | xxxxx | 0.678 |
| 12 | 5th Street & Magnolia Avenue | C | 17.5 | 0 | D | 26.8 | 0 |
| 13 | 4th Street & Magnolia Avenue | A | xxxxx | 0.463 | A | xxxxx | 0.491 |
| 14 | 3rd Street and Magnolia Avenue | C | xxxxx | 0.710 | A | xxxxx | 0.522 |
| 15 | Broadway & Magnolia Avenue | A | xxxxx | 0.583 | A | xxxxx | 0.525 |
| 16 | Ocean Boulevard & Magnolia Avenue | D | xxxxx | 0.831 | C | xxxxx | 0.780 |
| 17 | 4th Street & Chestnut Avenue | B | 10.4 | 0 | B | 11.9 | 0 |
| 18 | 3rd Street & Chestnut Avenue | A | xxxxx | 0.476 | A | xxxxx | 0.342 |
| 19 | Broadway & Chestnut Avenue | A | xxxxx | 0.354 | A | xxxxx | 0.529 |
| 20 | 4th Street & Cedar Avenue | A | xxxxx | 0.117 | A | xxxxx | 0.214 |
| 21 | 3rd Street & Cedar Avenue | A | xxxxx | 0.559 | A | xxxxx | 0.352 |
| 22 | Broadway & Cedar Avenue | A | xxxxx | 0.358 | A | xxxxx | 0.48 |
| 23 | 7th Street & Pacific Avenue | B | xxxxx | 0.679 | A | xxxxx | 0.572 |
| 24 | 6th Street & Pacific Avenue | A | xxxxx | 0.445 | C | xxxxx | 0.761 |
| 25 | 4th Street &u Pacific Avenue | A | xxxxx | 0.410 | A | xxxxx | 0.485 |
| 26 | 3rd Street & Pacific Avenue | C | xxxxx | 0.723 | A | xxxxx | 0.538 |
| 27 | Broadway & Pacific Avenue | A | xxxxx | 0.532 | D | xxxxx | 0.821 |
| 28 | Ocean Boulevard & Pacific Avenue | D | xxxxx | 0.830 | C | xxxxx | 0.721 |
| 29 | 4th Street & Pine Avenue | A | xxxxx | 0.257 | A | xxxxx | 0.403 |
| 30 | 3rd Street & Pine Avenue | A | xxxxx | 0.532 | A | xxxxx | 0.488 |
| 31 | Broadway & Pine Avenue | A | xxxxx | 0.427 | D | xxxxx | 0.805 |
| 32 | Ocean Boulevard & Pine Avenue | B | xxxxx | 0.677 | E | xxxxx | 0.989 |
| 33 | 3rd Street & Long Beach Boulevard | C | xxxxx | 0.761 | B | xxxxx | 0.638 |
| 34 | Broadway & Long Beach Boulevard | C | xxxxx | 0.722 | A | xxxxx | 0.524 |
| 35 | Ocean Boulevard & Long Beach Boulevard | C | xxxxx | 0.713 | D | xxxxx | 0.878 |
| 36 | Shoreline Drive & Ocean Boulevard | E | xxxxx | 0.981 | F | xxxxx | 1.145 |
| 37 | 7th Street & Magnolia Avenue | B | xxxxx | 0.674 | A | xxxxx | 0.571 |

* Note: Intersections are unsignalized and analyzed using HCS 2000 v/c ratio is not applicable at those locations
Average Vehicle Delay is in seconds

# WEST GATEWAY REDEVELOPMENT PROJECT

The Project consists of 11 redevelopment sites to be developed in two general development phases. The first phase will consist of approximately 409 apartment units, 354 condominium units, and 15,000 square feet of retail developed on sites 1, 9, 10, and 11 as previously shown on Figure 2. The full buildout will include an additional 154 apartment units.

### *Project Traffic Generation*

The first step in analyzing future traffic conditions with the Project is to estimate trip generation from the Project. Similar to the related projects in the previous chapter, the ITE Trip Generation rates were used to estimate future Project-related trips. Table 8 summarizes the trip estimates for each of the Project sites. The first Project phase is expected to generate 371 trips in the AM peak hour and 510 trips in the PM peak hour. The second Project phase is expected to generate an additional 100 AM peak hour trips and 127 PM peak hour trips.

### *Project Trip Distribution*

The routes people will use traveling to and from the project sites were determined based on the patterns of existing area traffic for similar types of developments and on patterns listed in previous traffic studies for the area. A summary of the development trip assignment trip assignments is presented in Figure 7 and in tabular form in the Appendix.

#### Project Access

The Project access for each of the sites was assumed to be primarily from the major east-west streets for the larger development sites and from the side streets, is possible, for the smaller sites. The access to and from Broadway and 3rd Street will be restricted to appropriate turn-in/turn-out only. For Site 1, some access could be provided along Golden and/or Maine Avenue. For Site 2, access could also be provided from Maine and/or Daisy Avenues. For Sites 3 through 7, all access was assumed to occur from the adjacent north-south streets.

### *Project Trip Assignment*

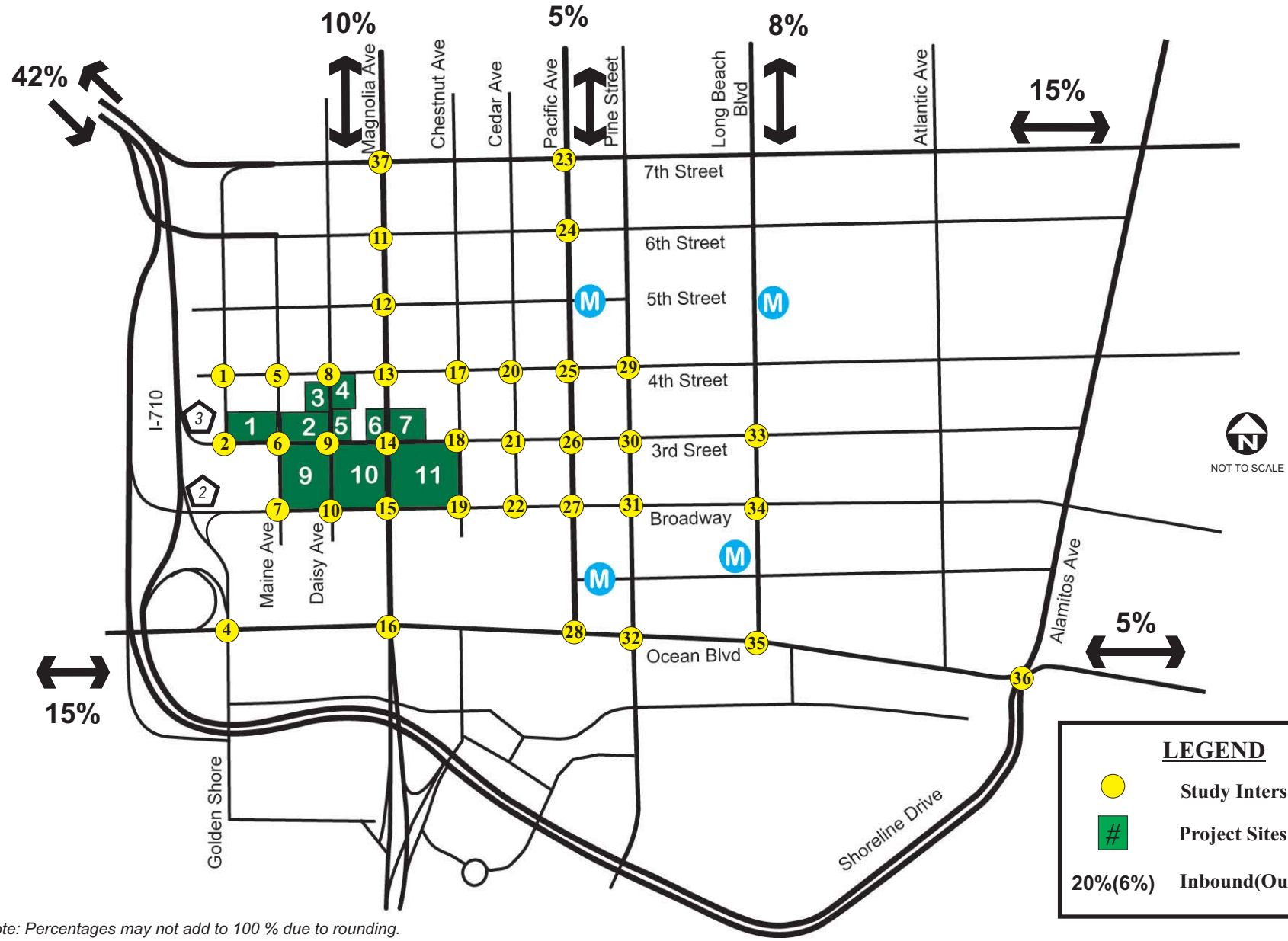
The trips generated by the Project for both the 2007 and 2010 analysis periods were assigned to the area street system using the directional distribution described above. Because there are multiple access routes from the north, south, east, and west for each site, the access route used for each site was unique depending on its location. The gateway from which the project traffic was assigned is identified in the Appendix table and the gateways are identified in Figure 7. The project trip assignment for Year 2007 is illustrated in Figure 8. The project trips assigned for Year 2010 are illustrated in Figure 9.

**Table 8**

**PROJECT TRIP GENERATION**

| Project | Location | Size | | | | | Density (res. units/ac.) | ITE Rate Code | Trip Generation | | | | Total Trips | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | | | | | | | | | | AM | | | PM | | | |
| | | Apt. Units | Condo Units | Retail Sq. Ft. (1000's) | Acres | Total Sq. Ft | | | AM Rate | Total AM Trips | PM Rate | Total PM Trips | Total trips | Ins | Outs | Total trips | Ins | Outs | Daily |
| 1.) Jamboree | 3rd St. between Golden and Maine | 64 | | | 1.01 | 43,996 | 63.00 | 223 | 0.30 | 19 | 0.39 | 25 | 19 | 6 | 13 | 25 | 15 | 11 | 424 |
| 2.) Phase 2 | 3rd St. between Maine and Daisy | 49 | | | 0.98 | 42,689 | 50.00 | 231 | 0.66 | 32 | 0.83 | 41 | 32 | 8 | 24 | 41 | 23 | 18 | 287 |
| 3.) Phase 2 | Daisy Ave between 3rd and 4th | 10 | | | 0.24 | 10,454 | 40.00 | 231 | 0.66 | 6 | 0.83 | 8 | 6 | 2 | 5 | 8 | 5 | 3 | 56 |
| 4.) Phase 2 | Daisy Ave between 3rd and 4th | 35 | | | 0.70 | 30,492 | 50.00 | 231 | 0.66 | 23 | 0.83 | 29 | 23 | 6 | 17 | 29 | 17 | 12 | 205 |
| 5.) Phase 2 | Daisy Ave between 3rd and 4th | 13 | | | 0.32 | 13,939 | 40.00 | 231 | 0.66 | 8 | 0.83 | 11 | 8 | 2 | 6 | 11 | 6 | 5 | 75 |
| 6.) Phase 2 | Magnolia Ave between 3rd and 4th | 10 | | | 0.25 | 10,890 | 40.00 | 231 | 0.66 | 7 | 0.83 | 8 | 7 | 2 | 5 | 8 | 5 | 3 | 59 |
| 7.) Phase 2 | Magnolia Ave between 3rd and 4th | 37 | | | 0.73 | 31,799 | 50.00 | 231 | 0.66 | 24 | 0.83 | 30 | 24 | 6 | 18 | 30 | 17 | 13 | 214 |
| 9.) Olson Co | Broadway between Main and Daisy | | 190 | | 2.42 | 105,415 | 79.00 | 231 | 0.66 | 125 | 0.83 | 158 | 125 | 31 | 94 | 158 | 90 | 68 | 1,113 |
| 10.) Greystone | Broadway between Daisy and Mangolia | | 164 | | 2.64 | 114,998 | 68.00 | 231 | 0.66 | 108 | 0.83 | 136 | 108 | 27 | 81 | 136 | 78 | 58 | 961 |
| 11.) Lyon Realty | Broadway between Magnolia and Chestnut | 345 | | | 3.38 | 147,233 | 102.00 | 223 | 0.30 | 104 | 0.39 | 135 | 104 | 32 | 72 | 135 | 78 | 57 | 2,287 |
| Retail | Broadway between Magnolia and Chestnut | | | 15 | | | | 820 | 1.03 | 15 | 3.74 | 56 | 15 | 9 | 6 | 56 | 27 | 29 | 644 |
| | | | | | | | | | | | Total Trips Generated = | | 456 | 121 | 335 | 581 | 333 | 248 | 5,681 |

*Notes: Phase 1 Developments to occur by 2005*
*Phase 2 Developments to occur by 2010*
[1] *Source - ITE Trip Generation Manual, 6th Ed, 1997*




*Note: Percentages may not add to 100 % due to rounding.*

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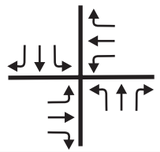
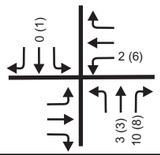
**FIGURE 7**
**Project Trip Distribution**

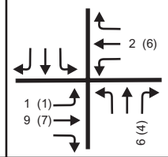
1. 4th St / Golden Shore Ave



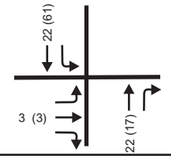
5. 4th St / Maine Ave



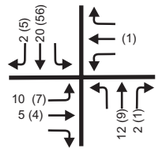

8. 4th St / Daisy Ave



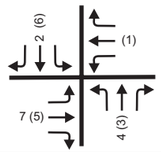

11. 6th St / Magnolia Ave




13. 4th St / Magnolia Ave




17. 4th St / Chestnut Ave

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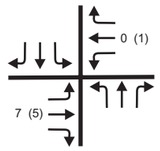


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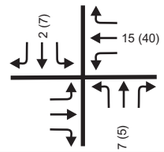


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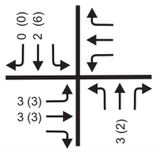
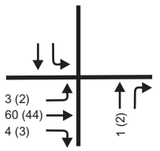
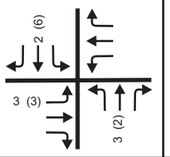


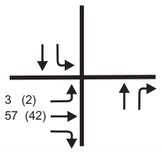

27. Broadway / Pacific Ave



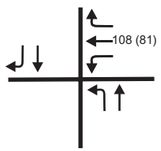

29. 4th St / Pine Ave



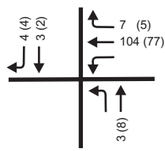

31. Broadway / Pine Ave



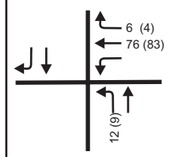

2. 3rd St / Golden Shore Ave



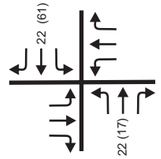

6. 3rd St / Maine Ave



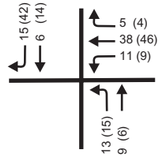

9. 3rd St / Daisy Ave



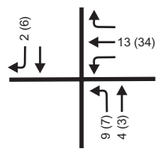

12. 5th St / Magnolia Ave



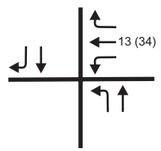

14. 3rd St / Magnolia Ave



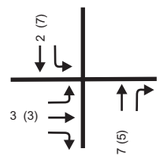

18. 3rd St / Chestnut Ave



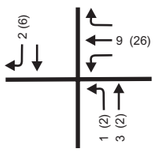

21. 3rd St / Cedar Ave



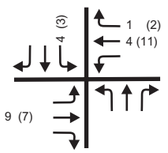

24. 6th St / Pacific Ave



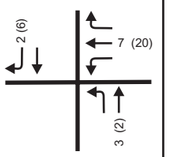

26. 3rd St / Pacific Ave



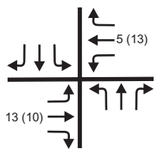

28. Ocean Blvd / Pacific Ave




30. 3rd St / Pine Ave

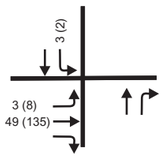



32. Ocean Blvd / Pine Ave

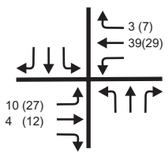



3. Broadway / Golden Shore Ave

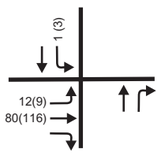
7. Broadway / Maine Ave



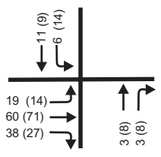

4. Ocean Blvd/Golden Shore Ave



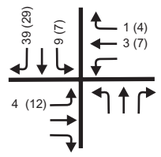

10. Broadway / Daisy Ave



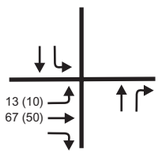

15. Broadway / Magnolia Ave



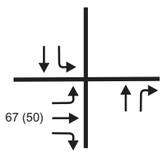

16 Ocean Blvd / Magnolia Ave

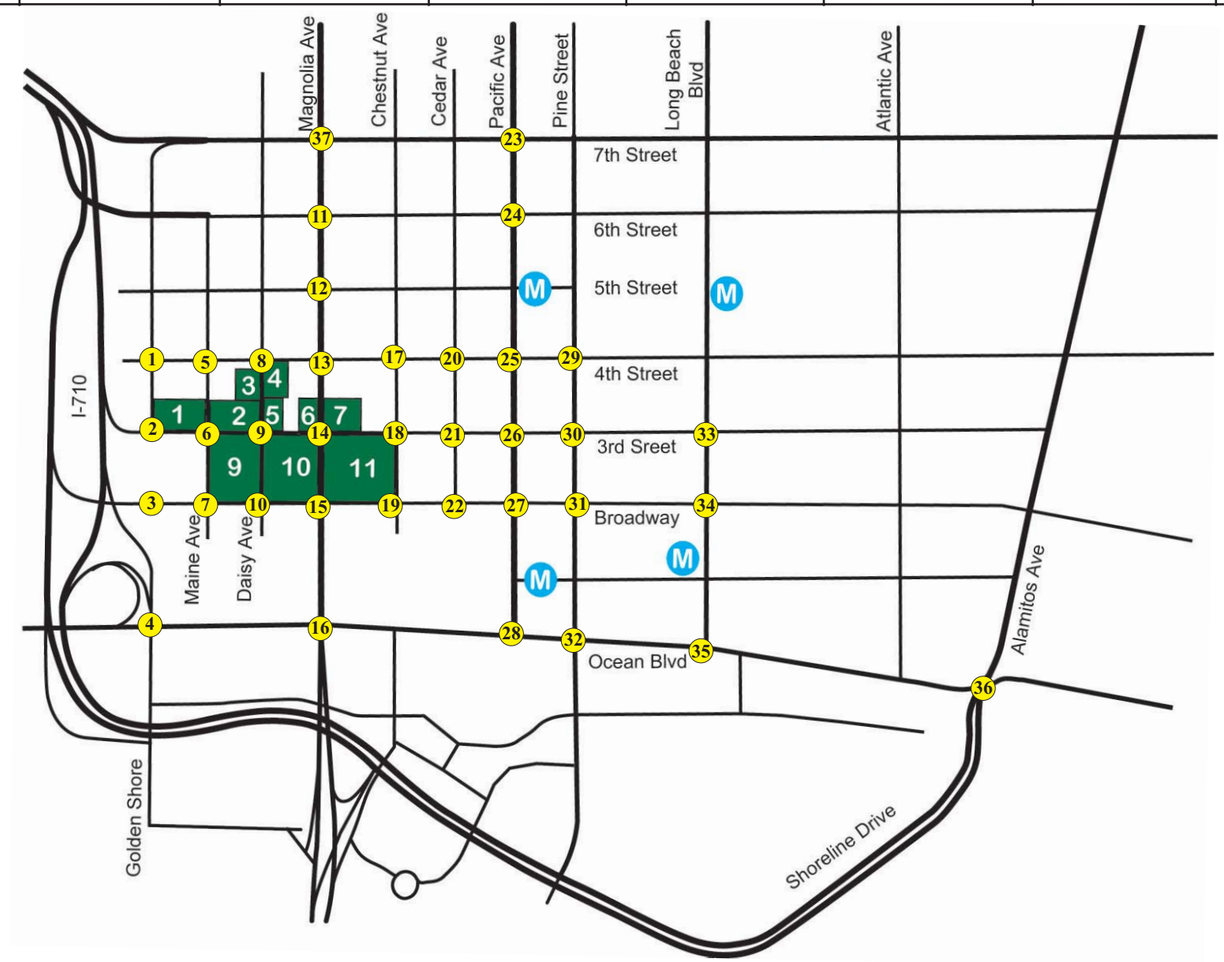



19. Broadway / Chestnut Ave

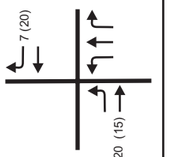



22. Broadway / Cedar Ave

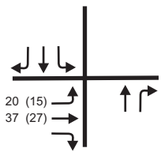


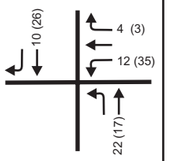

33. 3rd St / Long Beach Blvd



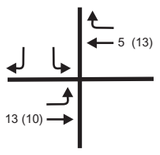

34. Broadway / Long Beach Blvd



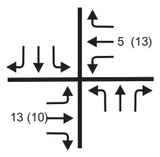

37. 7th St / Magnolia Ave




35. Ocean Blvd / Long Beach Blvd




36. Ocean Blvd / Shoreline Ave




NOT TO SCALE

## LEGEND

36 — Study Intersection

XX (XX) — AM (PM)

Meyer, Mohaddes Associates

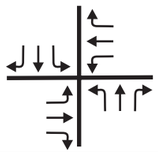
a business unit of Iteris, Inc.

Long Beach West Gateway Traffic Study

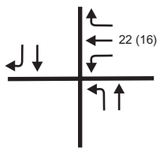
**FIGURE 8**

**Year 2007 Project Peak-Hour Traffic Volumes**

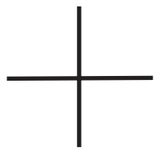
1. 4th St / Golden Shore Ave



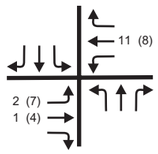
2. 3rd St / Golden Shore Ave



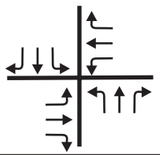

3. Broadway / Golden Shore Ave



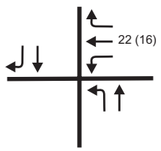
4. Ocean Blvd/Golden Shore Ave



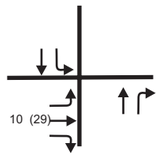

5. 4th St / Maine Ave



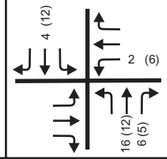
6. 3rd St / Maine Ave



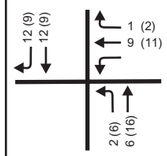

7. Broadway / Maine Ave



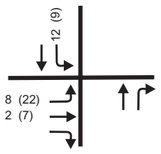

8. 4th St / Daisy Ave



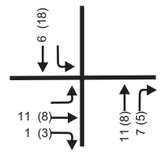

9. 3rd St / Daisy Ave



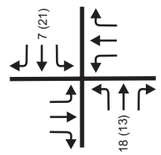

10. Broadway / Daisy Ave



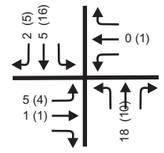

11. 6th St / Magnolia Ave



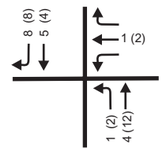

12. 5th St / Magnolia Ave



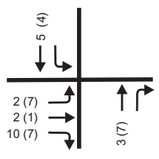

13. 4th St / Magnolia Ave



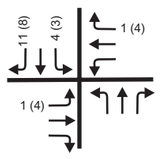

14. 3rd St / Magnolia Ave



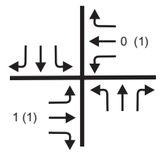

15. Broadway / Magnolia Ave



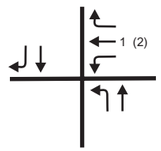

16 Ocean Blvd / Magnolia Ave



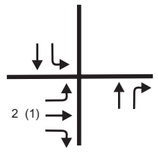

17. 4th St / Chestnut Ave



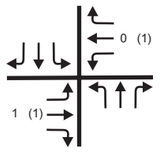

18. 3rd St / Chestnut Ave



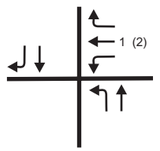

19. Broadway / Chestnut Ave



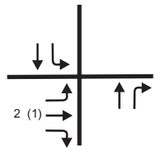

20. 4th St / Cedar Ave



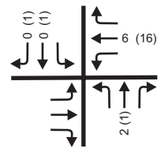

21. 3rd St / Cedar Ave



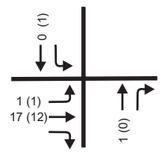

22. Broadway / Cedar Ave



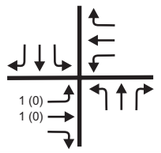

23. 7th St / Pacific Ave




24. 6th St / Pacific Ave




25. 4th St / Pacific Ave

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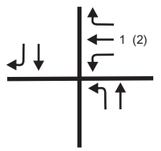


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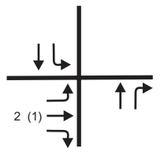


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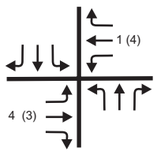


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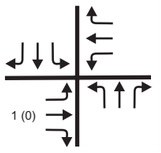


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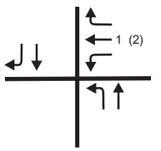


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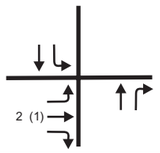


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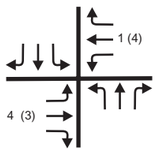


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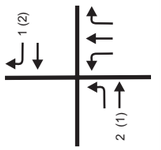


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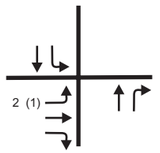
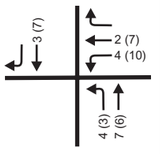
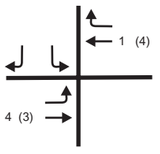


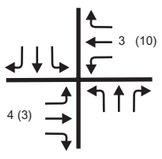

37. 7th St / Magnolia Ave

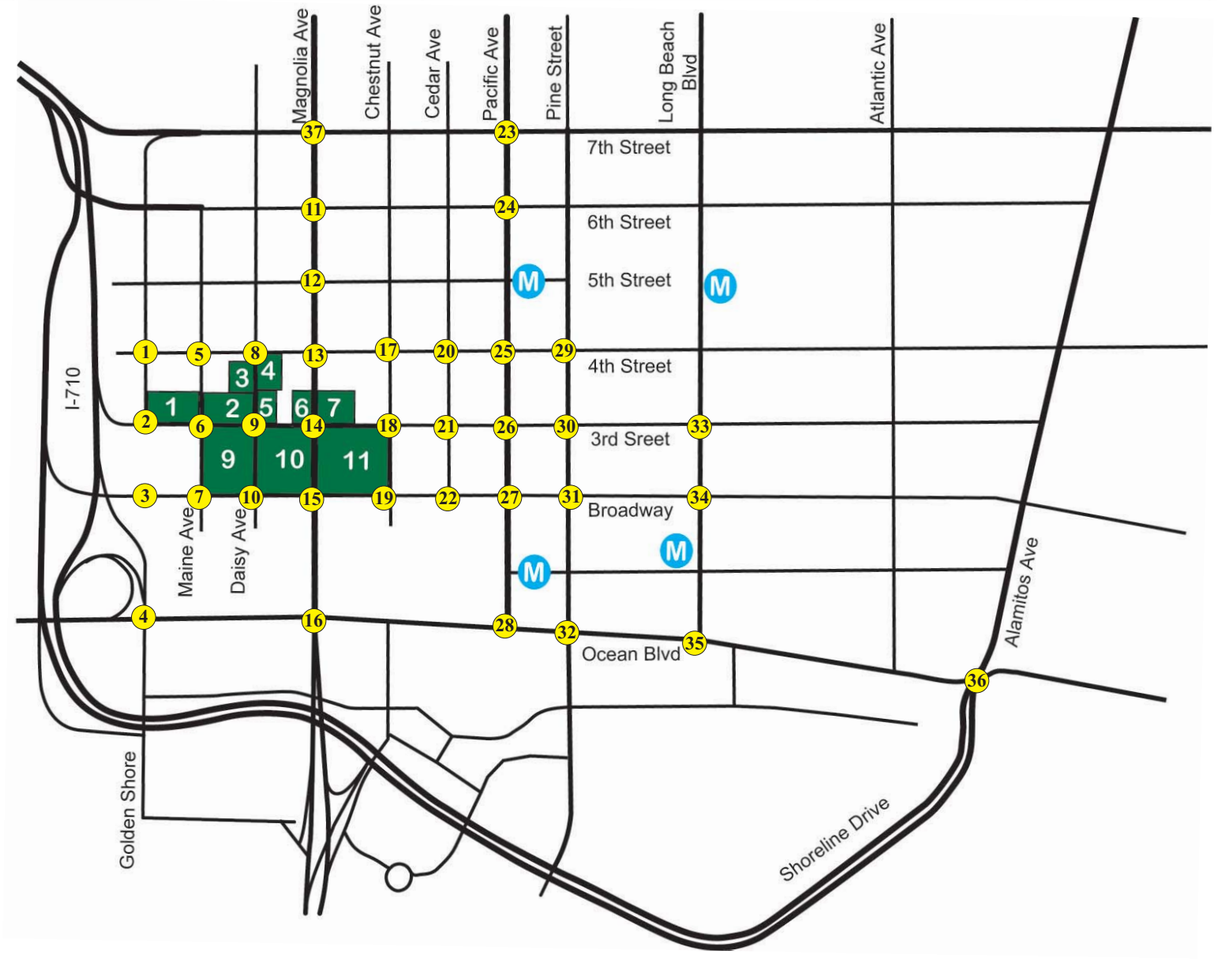



35. Ocean Blvd / Long Beach Blvd




36. Ocean Blvd / Shoreline Ave




NOT TO SCALE

## LEGEND

36 **Study Intersection**

XX (XX) **AM (PM)**

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**FIGURE 9**

**Year 2010 Project Peak-Hour Traffic Volumes**

### *Threshold of Significance*

Based on the City of Long Beach traffic Impact Guidelines, an impact is considered significant when the resulting level-of service with the project traffic is E or F and project related traffic contributes a V/C of 0.020 or more to the critical movements.

### *Year 2007 With-Project Traffic Operations*

The total intersection volumes for the Year 2007 are illustrated in Figure 10. For the 2007 With-Project conditions, five study intersections are projected to be operating at LOS E or LOS F in the AM and/or PM peak hour. The five intersections are:

- 3rd Street and Maine Avenue
- Broadway and Maine Avenue
- 3rd Street and Daisy Avenue (AM peak hour)
- Ocean Boulevard and Pine Avenue (PM peak hour)
- Shoreline Drive and Ocean Boulevard

In addition, peak hour operations at the six intersections of Ocean Boulevard and Golden Shore, 5th Street and Magnolia Avenue, Ocean Boulevard and Magnolia Avenue, Broadway and Pacific Avenue, Ocean Boulevard and Pacific Avenue, and Ocean Boulevard and Long Beach Boulevard would operate at LOS D during one or both of the peak hours. The remaining intersections would operate at acceptable levels of service. Table 9 summarizes the level of service results.

Based on the City's significance criteria, the Project would have ***no significant impact*** at any of the study area's signalized intersections.

### *Year 2010 With-Project Traffic Operations*

The total intersection volumes for the Year 2010 are illustrated in Figure 11. For the 2010 With-Project conditions, five study intersections are projected to be operating at LOS E or LOS F in the AM and/or PM peak hour. The six intersections are:

- 3rd Street and Maine Avenue
- Broadway and Maine Avenue
- 3rd Street and Daisy Avenue (AM peak hour)
- Ocean Boulevard and Pine Avenue (PM peak hour)
- Shoreline Drive and Ocean Boulevard

In addition, peak hour operations at the eight intersections of Ocean Boulevard and Golden Shore, 3rd Street and Daisy Avenue (AM), 5th Street and Magnolia Avenue, Ocean Boulevard and Magnolia Avenue, Broadway and Pacific Avenue, Ocean Boulevard and Pacific Avenue, Broadway and Pine Avenue, and Ocean Boulevard and Long Beach Boulevard would have one or both peak hours operating at LOS D. The remaining intersections would operate at LOS C or better. Table 10 summarizes the level of service results.

Based on the City's significance criteria, the Project would have ***no significant impact*** at any of the study area's signalized intersections.

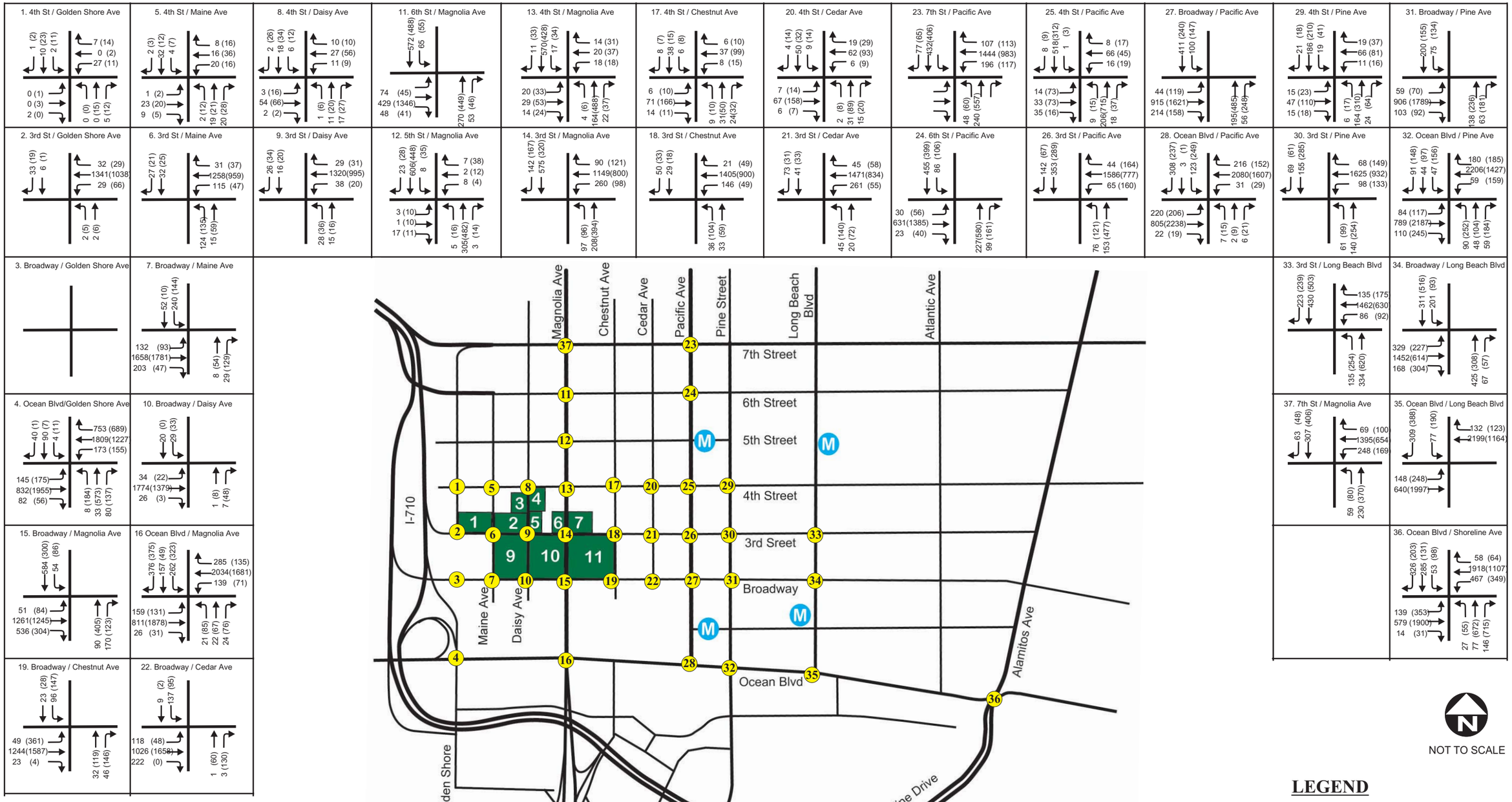


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**FIGURE 10**
**Year 2007 With-Project Peak-Hour Traffic Volumes**

## Table 9
## YEAR 2007 – WITH-PROJECT INTERSECTION OPERATING CONDITIONS

| | Intersection | Future w/ 2007 Redevelopments - Phase 1 | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| | | Future AM Peak Hour | | | | | Future PM Peak Hour | | | | |
| | | LOS | Avg Vehicle Delay | With Project V/C | Without Project V/C | Diff. | LOS | Avg Vehicle Delay | With Project V/C Ratio | Without Project V/C Ratio | Diff. |
| 1 | 4th Street & Golden Avenue | A | 7.1 | 0.058 | 0.058 | 0.00 | A | 7.0 | 0.045 | 0.045 | 0.00 |
| 2 | 3rd Street & Golden Avenue | A | xxxxx | 0.570 | 0.527 | 0.04 | A | xxxxx | 0.384 | 0.356 | 0.03 |
| 4 | Ocean Boulevard & Golden Shore | A | xxxxx | 0.566 | 0.553 | 0.01 | D | xxxxx | 0.864 | 0.861 | 0.00 |
| 5 | 4th Street & Maine Avenue | A | 7.3 | 0.064 | 0.060 | 0.00 | A | 7.3 | 0.086 | 0.077 | 0.01 |
| 6 | 3rd Street & Maine Avenue | F | 88.7 | 0 | 0 | 0.00 | F | 58.3 | 0 | 0 | 0.00 |
| 7 | Broadway & Maine Avenue | F | 608.6 | 0 | 0 | 0.00 | F | OVRFL | 0 | 0 | 0.00 |
| 8 | 4th Street & Daisy Avenue | A | 7.3 | 0.079 | 0.065 | 0.01 | A | 7.7 | 0.116 | 0.104 | 0.01 |
| 9 | 3rd Street & Daisy Avenue | E | 41.5 | 0 | 0 | 0.00 | C | 19.7 | 0 | 0 | 0.00 |
| 10 | Broadway & Daisy Avenue | A | xxxxx | 0.323 | 0.308 | 0.02 | A | xxxxx | 0.326 | 0.305 | 0.02 |
| 11 | 6th Street & Magnolia Avenue | A | xxxxx | 0.495 | 0.48 | 0.02 | B | xxxxx | 0.660 | 0.649 | 0.01 |
| 12 | 5th Street & Magnolia Avenue | C | 17 | 0 | 0 | 0.00 | D | 25.6 | 0 | 0 | 0.00 |
| 13 | 4th Street & Magnolia Avenue | A | xxxxx | 0.452 | 0.430 | 0.02 | A | xxxxx | 0.479 | 0.461 | 0.02 |
| 14 | 3rd Street and Magnolia Avenue | B | xxxxx | 0.692 | 0.663 | 0.03 | A | xxxxx | 0.51 | 0.493 | 0.02 |
| 15 | Broadway & Magnolia Avenue | A | xxxxx | 0.563 | 0.534 | 0.03 | A | xxxxx | 0.513 | 0.481 | 0.03 |
| 16 | Ocean Boulevard & Magnolia Avenue | D | xxxxx | 0.811 | 0.782 | 0.03 | C | xxxxx | 0.754 | 0.741 | 0.01 |
| 17 | 4th Street & Chestnut Avenue | B | 10.3 | 0 | 0 | 0.00 | B | 11.7 | 0 | 0 | 0.00 |
| 18 | 3rd Street & Chestnut Avenue | A | xxxxx | 0.463 | 0.452 | 0.01 | A | xxxxx | 0.334 | 0.317 | 0.02 |
| 19 | Broadway & Chestnut Avenue | A | xxxxx | 0.346 | 0.329 | 0.02 | A | xxxxx | 0.516 | 0.503 | 0.01 |
| 20 | 4th Street & Cedar Avenue | A | xxxxx | 0.114 | 0.114 | 0.00 | A | xxxxx | 0.209 | 0.205 | 0.00 |
| 21 | 3rd Street & Cedar Avenue | A | xxxxx | 0.545 | 0.542 | 0.00 | A | xxxxx | 0.345 | 0.337 | 0.01 |
| 22 | Broadway & Cedar Avenue | A | xxxxx | 0.350 | 0.336 | 0.01 | A | xxxxx | 0.469 | 0.458 | 0.01 |
| 23 | 7th Street & Pacific Avenue | B | xxxxx | 0.665 | 0.660 | 0.01 | A | xxxxx | 0.562 | 0.550 | 0.01 |
| 24 | 6th Street & Pacific Avenue | A | xxxxx | 0.437 | 0.434 | 0.00 | C | xxxxx | 0.744 | 0.742 | 0.00 |
| 25 | 4th Street &u Pacific Avenue | A | xxxxx | 0.402 | 0.399 | 0.00 | A | xxxxx | 0.476 | 0.474 | 0.00 |
| 26 | 3rd Street & Pacific Avenue | C | xxxxx | 0.708 | 0.705 | 0.00 | A | xxxxx | 0.528 | 0.521 | 0.01 |
| 27 | Broadway & Pacific Avenue | A | xxxxx | 0.523 | 0.508 | 0.02 | D | xxxxx | 0.804 | 0.793 | 0.01 |
| 28 | Ocean Boulevard & Pacific Avenue | D | xxxxx | 0.809 | 0.808 | 0.00 | C | xxxxx | 0.704 | 0.702 | 0.00 |
| 29 | 4th Street & Pine Avenue | A | xxxxx | 0.251 | 0.241 | 0.01 | A | xxxxx | 0.394 | 0.394 | 0.00 |
| 30 | 3rd Street & Pine Avenue | A | xxxxx | 0.519 | 0.517 | 0.00 | A | xxxxx | 0.477 | 0.472 | 0.01 |
| 31 | Broadway & Pine Avenue | A | xxxxx | 0.418 | 0.405 | 0.01 | C | xxxxx | 0.787 | 0.778 | 0.01 |
| 32 | Ocean Boulevard & Pine Avenue | B | xxxxx | 0.661 | 0.66 | 0.00 | E | xxxxx | 0.969 | 0.967 | 0.00 |
| 33 | 3rd Street & Long Beach Boulevard | C | xxxxx | 0.750 | 0.745 | 0.01 | B | xxxxx | 0.626 | 0.626 | 0.00 |
| 34 | Broadway & Long Beach Boulevard | C | xxxxx | 0.707 | 0.699 | 0.01 | A | xxxxx | 0.515 | 0.514 | 0.00 |
| 35 | Ocean Boulevard & Long Beach Boulevard | B | xxxxx | 0.695 | 0.694 | 0.00 | D | xxxxx | 0.855 | 0.850 | 0.01 |
| 36 | Shoreline Drive & Ocean Boulevard | E | xxxxx | 0.955 | 0.953 | 0.00 | F | xxxxx | 1.118 | 1.114 | 0.00 |
| 37 | 7th Street & Magnolia Avenue | B | xxxxx | 0.657 | 0.647 | 0.01 | A | xxxxx | 0.557 | 0.532 | 0.03 |

* Note: Intersections are unsignalized and analyzed using HCS 2000 v/c ratio is not applicable at those locations
Average Vehicle Delay is in seconds

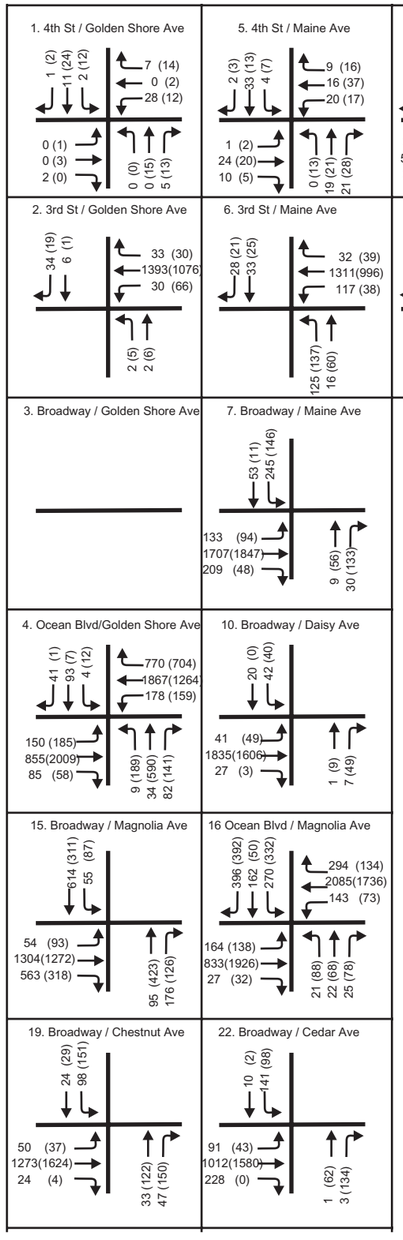


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**FIGURE 11**
**Year 2010 With-Project Peak-Hour Traffic Volumes**

**Table 10**
**YEAR 2010 – WITH-PROJECT INTERSECTION OPERATING CONDITIONS**

| | Intersection | Future w/ 2010 Redevelopments - Phase 2 | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| | | Future AM Peak Hour | | | | | Future PM Peak Hour | | | | |
| | | LOS | Avg Vehicle Delay | With Project V/C Ratio | Without Project V/C Ratio | Diff. | LOS | Avg Vehicle Delay | With Project V/C Ratio | Without Project V/C Ratio | Diff. |
| 1 | 4th Street & Golden Avenue | A | 7.1 | 0.059 | 0.059 | 0.00 | A | 7.0 | 0.046 | 0.046 | 0.00 |
| 2 | 3rd Street & Golden Avenue | A | xxxxx | 0.591 | 0.583 | 0.01 | A | xxxxx | 0.398 | 0.392 | 0.01 |
| 4 | Ocean Boulevard & Golden Shore | A | xxxxx | 0.583 | 0.580 | 0.00 | D | xxxxx | 0.880 | 0.887 | -0.01 |
| 5 | 4th Street & Maine Avenue | A | 7.3 | 0.066 | 0.066 | 0.00 | A | 7.3 | 0.089 | 0.089 | 0.00 |
| 6 | 3rd Street & Maine Avenue | F | 112.0 | 0 | 0 | 0.00 | F | 71.2 | 0 | 0 | 0.00 |
| 7 | Broadway & Maine Avenue | F | 718.3 | 0 | 0 | 0.00 | F | OVRFL | 0 | 0 | 0.00 |
| 8 | 4th Street & Daisy Avenue | A | 7.4 | 0.083 | 0.081 | 0.00 | A | 7.8 | 0.123 | 0.119 | 0.00 |
| 9 | 3rd Street & Daisy Avenue | F | 67.4 | 0 | 0 | 0.00 | D | 26.9 | 0 | 0 | 0.00 |
| 10 | Broadway & Daisy Avenue | A | xxxxx | 0.343 | 0.334 | 0.01 | A | xxxxx | 0.343 | 0.333 | 0.01 |
| 11 | 6th Street & Magnolia Avenue | A | xxxxx | 0.514 | 0.507 | 0.01 | B | xxxxx | 0.688 | 0.678 | 0.01 |
| 12 | 5th Street & Magnolia Avenue | C | 18.0 | 0 | 0 | 0.00 | D | 28.4 | 0 | 0 | 0.00 |
| 13 | 4th Street & Magnolia Avenue | A | xxxxx | 0.478 | 0.463 | 0.02 | A | xxxxx | 0.495 | 0.491 | 0.00 |
| 14 | 3rd Street and Magnolia Avenue | C | xxxxx | 0.716 | 0.710 | 0.01 | A | xxxxx | 0.531 | 0.522 | 0.01 |
| 15 | Broadway & Magnolia Avenue | A | xxxxx | 0.591 | 0.583 | 0.01 | A | xxxxx | 0.529 | 0.525 | 0.00 |
| 16 | Ocean Boulevard & Magnolia Avenue | D | xxxxx | 0.839 | 0.831 | 0.01 | C | xxxxx | 0.785 | 0.780 | 0.01 |
| 17 | 4th Street & Chestnut Avenue | B | 10.4 | 0 | 0 | 0.00 | B | 11.9 | 0 | 0 | 0.00 |
| 18 | 3rd Street & Chestnut Avenue | A | xxxxx | 0.476 | 0.476 | 0.00 | A | xxxxx | 0.342 | 0.342 | 0.00 |
| 19 | Broadway & Chestnut Avenue | A | xxxxx | 0.355 | 0.354 | 0.00 | A | xxxxx | 0.529 | 0.529 | 0.00 |
| 20 | 4th Street & Cedar Avenue | A | xxxxx | 0.118 | 0.117 | 0.00 | A | xxxxx | 0.215 | 0.214 | 0.00 |
| 21 | 3rd Street & Cedar Avenue | A | xxxxx | 0.559 | 0.559 | 0.00 | A | xxxxx | 0.353 | 0.352 | 0.00 |
| 22 | Broadway & Cedar Avenue | A | xxxxx | 0.359 | 0.358 | 0.00 | A | xxxxx | 0.480 | 0.480 | 0.00 |
| 23 | 7th Street & Pacific Avenue | B | xxxxx | 0.680 | 0.679 | 0.00 | A | xxxxx | 0.577 | 0.572 | 0.01 |
| 24 | 6th Street & Pacific Avenue | A | xxxxx | 0.449 | 0.445 | 0.00 | C | xxxxx | 0.763 | 0.761 | 0.00 |
| 25 | 4th Street &u Pacific Avenue | A | xxxxx | 0.410 | 0.410 | 0.00 | A | xxxxx | 0.486 | 0.485 | 0.00 |
| 26 | 3rd Street & Pacific Avenue | C | xxxxx | 0.723 | 0.723 | 0.00 | A | xxxxx | 0.538 | 0.538 | 0.00 |
| 27 | Broadway & Pacific Avenue | A | xxxxx | 0.532 | 0.532 | 0.00 | D | xxxxx | 0.821 | 0.821 | 0.00 |
| 28 | Ocean Boulevard & Pacific Avenue | D | xxxxx | 0.830 | 0.830 | 0.00 | C | xxxxx | 0.722 | 0.721 | 0.00 |
| 29 | 4th Street & Pine Avenue | A | xxxxx | 0.258 | 0.257 | 0.00 | A | xxxxx | 0.403 | 0.403 | 0.00 |
| 30 | 3rd Street & Pine Avenue | A | xxxxx | 0.532 | 0.532 | 0.00 | A | xxxxx | 0.488 | 0.488 | 0.00 |
| 31 | Broadway & Pine Avenue | A | xxxxx | 0.428 | 0.427 | 0.00 | D | xxxxx | 0.806 | 0.805 | 0.00 |
| 32 | Ocean Boulevard & Pine Avenue | B | xxxxx | 0.677 | 0.677 | 0.00 | E | xxxxx | 0.990 | 0.989 | 0.00 |
| 33 | 3rd Street & Long Beach Boulevard | C | xxxxx | 0.761 | 0.761 | 0.00 | B | xxxxx | 0.638 | 0.638 | 0.00 |
| 34 | Broadway & Long Beach Boulevard | C | xxxxx | 0.722 | 0.722 | 0.00 | A | xxxxx | 0.524 | 0.524 | 0.00 |
| 35 | Ocean Boulevard & Long Beach Boulevard | C | xxxxx | 0.713 | 0.713 | 0.00 | D | xxxxx | 0.879 | 0.878 | 0.00 |
| 36 | Shoreline Drive & Ocean Boulevard | E | xxxxx | 0.981 | 0.981 | 0.00 | F | xxxxx | 1.146 | 1.145 | 0.00 |
| 37 | 7th Street & Magnolia Avenue | B | xxxxx | 0.680 | 0.674 | 0.01 | A | xxxxx | 0.582 | 0.571 | 0.01 |

* Note: Intersections are unsignalized and analyzed using HCS 2000 v/c ratio is not applicable at those locations
Average Vehicle Delay is in seconds

### *Impacts at Unsignalized Intersections*

Since the City of Long Beach does not have official criteria to determine significant traffic impact at a stop-controlled intersection, a review of the unsignalized intersections near the Project was performed to determine the relative increase in delay for the purpose of significant impact determination. As previously discussed, there are eight unsignalized intersections in the study area. Of those eight, only the Broadway and Maine and 3rd Street and Daisy Avenue intersections operate at LOS E or F after the development of the Project. A comparison of the No-Build and With-Project delays is shown in Table 11.

**Table 11**
**INCREASE IN DELAY AT UNSIGNALIZED STUDY AREA INTERSECTIONS**

| | Year 2007 | | | | Year 2010 | | | |
|---|---|---|---|---|---|---|---|---|
| Intersection | No-Build | With-Project | Diff. | % Increase | No-Build | With-Project | Diff. | % Increase |
| Broadway/Maine Street | | | | | | | | |
| *AM Peak Hour* | 525.4 | 608.6 | 83.2 | 15.8% | 702.0 | 718.3 | 16.3 | 2.3% |
| *PM Peak Hour* | OVFL | OVFL | N/A | N/A | OVFL | OVFL | N/A | N/A |
| 3rd Street/Daisy Avenue | | | | | | | | |
| *AM Peak Hour* | 38.7 | 41.5 | 2.8 | 7.2% | 45.6 | 67.4 | 21.8 | 47.8% |
| *PM Peak Hour* | 18.4 | 19.7 | 1.3 | 7.1% | 20.4 | 26.9 | 6.5 | 31.9% |

Discussions with City staff indicated that there are already committed improvements to install traffic signals at the intersections of Broadway and Maine and 3rd Street and Maine. With the installation of a traffic signal at the Broadway and Maine intersection, the impacts at that intersection will be mitigated and the intersection will operate at an acceptable level of service. Therefore, only the intersection of 3rd Street and Daisy will experience some level of project-related impacts.

# TRANSPORTATION SYSTEM IMPROVEMENT RECOMMENDATIONS

Improvements to the area transportation system are proposed as part of the Project and as part of other area projects previously approved by the City of Long Beach. The following discusses these improvements and proposed project mitigation measures.

### *Previously Committed Improvements*

As previously discussed, the City has committed to installing traffic signals at the intersections of Maine Avenue with Broadway and 3rd Street. The projected poor future operating conditions at the Broadway and Maine Avenue would be mitigated by the traffic signal. The Year 2007 With-Project V/C's would be reduced to 0.484 for the AM peak hour and 0.544 for PM peak hour—both LOS A. For the Year 2010, the V/C's would be 0.498 in the AM and 0.563 in the PM—also both LOS A.

The projected poor future operating conditions at the 3rd Street and Maine Avenue intersection would also be mitigated by the traffic signal. The Year 2007 With-Project V/C's would be reduced to 0.517 for the AM peak hour and 0.469 for PM peak hour—both LOS A. For the Year 2010, the V/C's would be 0.535 in the AM and 0.484 in the PM—also both LOS A. The traffic signal would also assist with pedestrian movement at the intersection.

### *Project Improvements*

As part of preliminary discussions with City staff, the concept of installing a traffic signal at the intersection of 3rd Street and Daisy Avenue was presented to complete the traffic signal grid in this area. Providing a traffic signal at this location would reduce traffic delays and provide for a more controlled pedestrian crossing at this intersection. While a traffic signal would not be required to mitigate Project-related impacts based on the City standards, it should be considered as a traffic control measure for enhanced pedestrian safety. However, a traffic signal warrant analysis should be performed to confirm the requirements for a traffic signal at this intersection.

### *Year 2007 Mitigation Measures*

No mitigation measures would be required for the first phase of the Project.

### *Year 2010 Mitigation Measures*

No mitigation measures would be required for the second phase of the Project.

### *CONGESTION MANAGEMENT PROGRAM SYSTEM ANALYSIS*

The Congestion Management Program (CMP) was created statewide as a result of Proposition 111 and has been implemented locally by the Los Angeles County Metropolitan Transportation Authority (LACMTA). The CMP for Los Angeles County requires that the traffic impact of

individual development projects of potential regional significance be analyzed. A specific system of arterial roadways plus all freeways comprise the CMP system. A total of 164 intersections are identified for monitoring on the system in Los Angeles County. This section describes the analysis of project-related impacts on the CMP system. The analysis has been conducted according to the guidelines set forth in the 2002 Congestion Management Program for Los Angeles County.

## CMP Intersection Analysis

The intersection of Ocean Boulevard with Alamitos Boulevard is the only study area intersection that is part of the CMP Arterial monitoring locations. For purposes of the CMP, a significant impact occurs when the proposed project increases traffic demand on a CMP facility by two percent of capacity (V/C ≥ 0.02), causing LOS F (V/C > 1.00). If the facility is already at LOS F, a significant impact occurs when the proposed project increases traffic demand on a CMP facility by two percent of capacity (V/C ≥ 0.02). The results of the capacity analysis indicate that the project will increase demand at the intersection by one percent or less (≥ 0.01). Therefore, the project will not have a significant CMP impact at the intersection.

## CMP Mainline Freeway Segment Analysis

The focus of this analysis is to determine whether project related trips would significantly impact the freeway system according to CMP guidelines and threshold of significance. For purposes of analyzing the mainline freeway impact of the project, the nearest freeway monitoring station is located along the I-710 Freeway. Table 12 summarizes the project added trips by time period, direction and location. The project added trips were compared with CMP Traffic Impact Analysis guidelines to determine if additional traffic impact analysis is needed at the freeway monitoring station.

As shown in Table 12, the proposed project does not contribute more than minimum threshold of 150 peak-period trips at any CMP mainline location. Based on CMP criteria described previously, detailed impact analysis is not warranted.

**Table 12**
**PROJECT ADDED TRIPS AT FREEWAY MONITORING STATIONS**

| Freeway Analysis Segment | Project Added Trips by Direction | | Traffic Impact Analysis Required? | |
|---|---|---|---|---|
| | NB | SB | NB | SB |
| ***Weekday AM Peak Hour*** | | | | |
| I-710 Freeway south of Anaheim Street | 51 | 140 | No | No |
| ***Weekday PM Peak Hour*** | | | | |
| I-710 Freeway south of Anaheim Street | 140 | 104 | No | No |

# SUMMARY

In summary, the Project would not significantly impact any of the 36 study intersections. The poor operation conditions at three of the currently unsignalized intersections would be mitigated by the installation of traffic signals at those intersections. However, beyond those locations where traffic signals are already committed, warrant analyses should be considered to verify the need for traffic signals. Without signalization at those locations, the unsignalized intersections of Broadway and Maine Avenue and 3rd Street and Daisy Avenue would experience significant delay.

# APPENDIX

# TRAFFIC COUNTS

# CAPACITY ANALYSES

# EXISTING CONDITIONS

# CAPACITY ANALYSES

# YEAR 2007 – NO-BUILD

# CAPACITY ANALYSES

# YEAR 2010 – NO-BUILD

# CAPACITY ANALYSIS

# YEAR 2007 – WITH-PROJECT

# CAPCITY ANALYSES

# YEAR 2007 – WITH-PROJECT WITH ADDITIONAL TRAFFIC SIGNALS

# CAPCITY ANALYSES

# YEAR 2010 – WITH-PROJECT

# CAPCITY ANALYSES

# YEAR 2010 – WITH-PROJECT WITH ADDITIONAL TRAFFIC SIGNALS